What are the commercial and financial barriers associated with walloon livestock farms transitioning to an organic label?

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WHAT ARE THE COMMERCIAL AND FINANCIAL BARRIERS ASSOCIATED WITH WALLOON LIVESTOCK FARMS TRANSITIONING TO AN ORGANIC LABEL?

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List of abbreviations

i.e.	In other words
e.g.	For example
cfr.	Confer
p.	page
FAO	Food and Agriculture Organization of the United Nations
OECD	Organisation for Economic Co-operation and Development
CAP	Common Agricultural Policy
BCE	Banque Carrefour des Entreprises
SPW ARNE	Directorate of the Public Service Wallonia of Agriculture
SIGEC	Integrated System of Management and Control
VAT	Value added tax
BELAC	Belgian Accreditation Body
BCAE	Good Agricultural and Environmental Conditions
ERMG	Regulatory Requirements for Management Compliance
UGB/LU	Livestock Unit
HA	Hectare
€	Euros
EU	European Union
P&L	Profit and Loss Accounts
FADN	Farm Accountancy Data Network
DAEA	Direction de l'Analyse Economique Agricole
AVG	Average
TA	Total Assets
TL	Total Liabilities
LT	Long term
ST	Short term
GOS	Gross Operating Surplus
Phyto	Phytosanitary substances
Maint	Maintenance
Build	Building
Mach	Machines
Liab	Liabilities
FASFC	Federal Agency for the Safety of the Food Chain
NACE-BEL	Numerical code used to classify economic activities in Belgium
SANITEL	FASFC software tracking system
N/a	Not applicable

Introduction

"Agriculture provides food and livelihood for millions and shapes our rural areas and the natural environment. (…) Without prospects for a decent return, farmers will leave the sector and agricultural production will not take place."(European Commission, Agri Sustainability Compass, 2024b).

With current uncertain geopolitical times due to wars, trade-wars, elections and other conflicts, the European Union undoubtedly needs to strike a balance between food security, environmental protection but also farmer frustration. Indeed, recent protests, strikes and activism of farmers indicate that the central European, and notably Belgium's agricultural sector is under pressure.

Not only are the stakes significant on an EU level, considering that the agricultural support budget of the European Union in 2022 amounts to 23,5% of total EU expenditures or 0,38% of the EU gross domestic product (European Commission, 2024a), but also on a regional level for Belgium. In fact, Wallonia consists of approximately 43% of agricultural land and 12 000 farms (European Commission, 2025). Moreover, the value chain of the agricultural sector cascades onto various other sectors and influences the regional environmental and economic health (CAP Strategic Plan Wallonia, 2023).

Two types of farming exist: conventional and organic. Organic farming is a farming approach focusing on a high level of environmental friendliness and animal welfare. The goods are produced by relying on natural substances and processes, and not only cater to the market segment seeking these attributes, but also broadly benefit society through environmental protection, animal welfare and sustainable development of rural areas (Regulation (EU) No 848, 2018). Nevertheless, to achieve these outcomes, the organic farming processes have various constraints (Regulation (EU) No 848, 2018) leading to losses compared to conventional farms, which are however only partially compensated for by organic support payments (CAP Strategic Plan Wallonia, 2023).

The literature suggests that organic farmers are less risk averse (Acs et al., 2009; Flaten et al., 2005; Kallas et al., 2009; Läpple & Rensburg, 2011; Tzouramani et al., 2014) and touches upon several risk factors and risk management strategies related to organic farm systems (Tiedemann & Latacz-Lohmann, 2013; Hanson et al., 2004; Labajova et al., 2022; Gardebroek et al., 2010; Home et al., 2019; Kerselaers et al., 2007; Flaten et al., 2005; Tzouramani et al., 2014; Darnhofer et al., 2005; Filippini et al., 2020).

Moreover, the literature addresses the drivers and barriers of organic demand. While consumers generally highly value organic products (Cubero Dudinskaya et al., 2021) due to health and environmental concerns (Hughner et al., 2007; Cubero Dudinskaya et al., 2021), the local attribute of a product seems to be critical (Cubero Dudinskaya et al., 2021; Filippini et al., 2020; Hughner et al., 2007; Janssen & Hamm, 2012). The consumers also often perceive local products as organic, even if it is not the case (Hughner et al., 2007). Yet, the price of these goods remains the main obstacle for the demand (Hughner et al., 2007).

While the economic and profitability potential of organic farms is high (Crowder & Reganold, 2015; Koppenberg, 2023; Acs et al., 2007; Grovermann et al., 2021; Kerselaers et al., 2007), the impact of subsidies remains key on the financial side of organic farms (Offermann & Nieberg, 2000; Stolze & Lampkin, 2009; Giannakis & Bruggeman, 2015; CAP Strategic Plan Wallonia, 2023).

However, the yield and efficiency of organic systems are suggested to be lower (Crowder & Reganold, 2015; Gaudaré et al., 2021; Reganold & Wachter, 2016; Shennan et al., 2017), while additionally, the outsourced production expenses are suggested to be higher than conventional farms (Crowder & Reganold, 2015; Hanson et al., 2004; Pretty et al., 2001).

The literature incorporates both quantitative and qualitative studies but is heavily skewed towards the quantitative side and in need of qualitative insights to complement the raw data driven studies with non-monetary factors (Kremmydas et al., 2023). Additionally, relevant and recent literature is very limited, with even fewer sources (Kerselaers et al., 2007) available specifically for Belgium and inexistent for Wallonia.

Whereas the CAP Strategic Plan of Wallonia (2023) (i.e. the strategic support plan for the period 2023 to 2027) studies the Walloon landscape of agriculture, it fails to see the interplay and synergies between potential key factors. Indeed, it addresses issues using blanket coverage of support payments based on quantitative data only, without seeing the interplay of numerous parameters that contribute to the difficulties navigated by the farmers. While the consequences of the challenges are reflected in the numbers, the causes and interactions remain invisible.

This presents an opportunity to conduct a qualitative study (complemented by a quantitative part) enabling a view through a fresh lens on the commercial and financial barriers of Walloon organic farmers in order to provide an overview and potentially new leverage points on the issues for policymakers, farmers and other stakeholders.

As the Walloon agricultural sector mainly focuses on livestock (FADN Public Database, 2022; CAP Strategic Plan Wallonia, 2023), the thesis will focus specifically on this type of organic farm in order to cover most of the Walloon activity.

To specifically narrow down the theory towards the Walloon landscape, semi-structured interviews of three (n=3) Walloon agricultural macro-actors as well as a financial analysis on a database (n=585) provided by the Wallon *Direction de l'Analyse Economique Agricole* have been realized. Then, in order to investigate the Walloon livestock case, twelve (n=12) semi-structured interviews of Walloon livestock farmers have been conducted, where one did a reversion back to conventional, one recently stopped his activity but thought about transitioning, and ten that were organic.

The remaining segments of the thesis are structured as follows. First, a literature review has been conducted which is partitioned in three parts. The first part reviews sustainable agriculture as a global challenge. The second part addresses the institutional theory and regulatory framework. The third part, assess the economic, financial and managerial considerations. Then, a detailed methodological segment is presented. Following this is the development of the hypothesises which incorporates the macro-actor and financial analysis. Furthermore, the results are then displayed and followed by the discussion of the findings which includes the limitations. Lastly, a conclusion of the thesis is made.

Literature Review

1. Sustainable agriculture as a global challenge

1.1. Defining sustainable and organic agriculture

The trend towards sustainable and organic agriculture is not a recent area of interest. Indeed, even as far back as 1920, this theme is commonly explored by researchers under the term "agroecology" (FAO, 2024). At the end of the 20th century, the primary aim of agroecology was described as solving sustainability issues in agriculture (Altieri, 1989). Altieri (1989) also addressed the issue with incorporating new technologies in farming. He emphasized that new technologies should not only be aimed at reducing inputs but also need to be (1) "*socially activating"* i.e. "*high degree of popular engagement*", (2) "*culturally compatible*" (building and adding elements onto traditional practices) as well as (3) "*ecologically sound*" and (4) be "*economically viable*" (Altieri, 1989, p.45). Although, Altieri (1989) used these four elements to describe the introduction of new technologies in agroecology, they can be used as a first base of a definition and core concepts of sustainable agriculture.

Moreover, a recent definition of agroecology can be sourced from page 1, §3 of the 10 elements of agroecology published by the FAO in 2024: *"Agroecology is an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems. It seeks to optimize the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system."*

However, despite the definition of the FAO (2024) incorporating the essence of what sustainable agriculture is, there may not be enough emphasis on the crucial economic aspect. In contrast, Lampkin (2003) suggests in a book of organic agriculture (OECD, 2003, p.313) a definition of organic farming which better aligns with the focus of this thesis. Lampkin (2003) describes organic farming on page 313 as: "*an approach to agriculture that emphasises environmental protection, animal welfare, food quality and health, sustainable resource use and social justice objectives, and which utilises the market to help support these objectives and compensate for the internalisation of externalities".* As stated, Lampkin (2003) mentions that the market is utilized to achieve all these sustainable benefits. In other words, the economic dimension being an integral part of organic farming practices can thus be deducted.

Finally, the European commission, in the regulation (EU) 2018/848 page 1, §1, defines the organic agriculture as *:"(…) an overall system of farm management and food production that combines best environmental and climate action practices, a high level of biodiversity, the preservation of natural resources and the application of high animal welfare standards and high production standards in line with the demand of a growing number of consumers for products produced using natural substances and processes. Organic production thus plays a dual societal role, where, on the one hand, it provides for a specific market responding to consumer demand for organic products and, on the other hand, it delivers publicly available goods that contribute to the protection of the environment and animal welfare, as well as to rural development."*

1.2. Environmental impact and trends of organic agriculture

Organic farming adoption, in the world and Europe, has seen a substantial growth over the last years (FiBL & IFOAM Organics International, 2024; FiBL Statistics, 2024). As a general consensus, organic farming seems to be perceived as more environmentally friendly than conventional agricultural practices (Mondelaers et al., 2009). Furthermore, livestock productions are essential for the sustainable development of agricultural areas (Filippini et al., 2020; CAP Strategic Plan Wallonia, 2023). Numerous studies investigated the environmental impact of organic agriculture. Indeed, in their meta-analysis of peer reviewed literature, Mondelaers et al. (2009) found that organic agriculture leads to a higher concentration of organic matter in the soil (richer habitat for living organisms, improved soil filtering and reduced erosion) and enhanced biodiversity (breeds and wildlife).

However, Mondelaers et al. (2009) also found that organic farms have on average a 20% reduced land use efficiency (i.e. 20% less production for the same land) compared to conventional farms and therefore the positive impact on pollution (i.e. less substance soil leaching and greenhouse gas emissions) is less obvious when expressed per unit product. In addition, Mondelaers et al. (2009) emphasise that the main positive impacts resulting from organic agriculture come from decreased input intensity as stated on page 12, §2: "*less fertilizer use, lower animal density, no chemical inputs".* Mondelaers et al.'s (2009) findings have also been underlined by Birkhofer et al. (2016) but, nonetheless, they also acknowledge that conventional agriculture bears an increased environmental risk and thus should be modified to address the risks.

Notwithstanding the lower yield and efficiency of organic farming, and not to mention the increased environmental friendliness as well as decreased pesticide use, Reganold and Wachter (2016) also point out that organic agriculture plays an important role in social benefits while its output of food quality is equal or more nutritious than conventional farms. Yet, the causes of variation of animal product quality are numerous and seem to be only partially related to livestock farming practices; the race of the animal, farming practices, the transport and slaughtering, transformation, distribution and domestic food handling all play an important role in the quality (Prache et al., 2023).

Furthermore, concerning animal welfare, animal housing conditions and locomotion areas are generally superior on organic farms than on conventional farms (Sundrum, 2001). However, data on animal welfare is limited (Hovi et al., 2003) and direct animal welfare measurements are not described in the literature (Sundrum, 2001). While Sundrum (2001) does point out that there are approximate measurements of animal living conditions in the literature, he emphasises that these assessments are not satisfactory. In any case, by seeing the issue in a different way, Hovi et al. (2003) suggest that there is little to no evidence that would suggest that organic livestock management causes any major threats on animal health and welfare when compared to conventional farming.

Moreover, there seems to be a concern whether organic agriculture, given the lower efficiency, can safely feed the entire human population (Birkhofer et al., 2016; Mondelaers et al., 2009; Reganold & Wachter, 2016). However, a recent projection shows that the world-wide population is increasing at much slower rate and is projected to stagnate at around the year 2070 from where it will decrease until the year 2100, this trajectory is even more pronounced for Europe (UN, 2024). Given the projections and non-existing up to date literature available on the topic, organic farming may be sufficient to feed the entire human population, or at least the European population, if developed abundantly, further underlining the importance of the stakes at play of the organic agricultural sector.

2. Institutional theory and regulatory frameworks

2.1. The institutional theory and its application to agriculture

Common knowledge is that the institutional and regulatory landscape has a crucial impact on organizations. Indeed, the institutional theory suggests that organizations within the same field become increasingly more similar over time. This tendency is due to institutional pressure which leads to homogeneity within organizations producing similar products and services (DiMaggio & Powell, 1983). DiMaggio & Powell (1983) describe this phenomenon as institutional isomorphism, which contradicts the believe that competition alone is a driver for organizational adaptations. Three types of isomorphisms are characterized by DiMaggio & Powell (1983): (1) coercive, (2) mimetic and (3) normative. On one hand, coercive isomorphism occurs from formal and informal pressures coming from regulatory and funding bodies or cultural expectations which push organizations towards conformity to avoid penalties or gain legitimacy. On the other hand, mimetic isomorphism occurs in highly uncertain environments where successful strategies of organization are imitated to address ambiguity and risk. The last isomorphism, being normative, results from a standardized education and professional networks which share norms and values, leading to common practices and knowledge within organizations (DiMaggio & Powell, 1983).

While isomorphism increases similarities among organizations, it is suggested to decrease innovation and efficiency (DiMaggio & Powell, 1983). Furthermore, adaptations are seen to be only executed to gain legitimacy rather than actually bringing improvements and innovations to organizations (DiMaggio & Powell, 1983). This can also be deducted from Geels & Schot (2007)'s paper on sociotechnical transition pathways. Indeed, in both papers, the institutional pressure and regulatory standards encourage stability and discourage divergence from the status quo (DiMaggio & Powell, 1983; Geels & Schot, 2007).

2.1.1. Links to organic agriculture in Europe

Clear links to agriculture, more specifically organic agriculture, can be drawn from DiMaggio & Powell (1983)'s and Geels & Schot (2007)'s work. Especially considering organic farm adoptions have been increasing heavily over the recent years (FiBL & IFOAM Organics International, 2024; FiBL Statistics, 2024). In fact, a fair deduction from both papers, especially from DiMaggio & Powell (1983)'s, is that there might be, indeed, institutional isomorphism happening to European organic farmers that leads to homogeneity and uniformity among them and thus it may decrease efficiency and innovation as described by DiMaggio & Powell (1983).

Moreover, by applying DiMaggio & Powell (1983)'s paper to European agriculture, we can fairly speculate that some form of coercive isomorphism is taking place. In fact, with the regulations of the European Common Agricultural Policy (the "CAP") (which will be further described in point "2.2. The regulatory framework for organic farming in Europe") and thus subsidies as well as sustainability requirements of organic practices may mould organic farms towards homogeneity and in addition, may push conventional farmers to align increasingly with the new eco-friendly standards to avoid penalties and/or gain legitimacy as described by DiMaggio & Powell (1983). Furthermore, organic farming is often associated with higher risk (Hanson et al., 2004; Labajova et al., 2022) especially in the transition period (Kerselaers et al., 2007) and higher volatility (Acs et al., 2009). To diminish the risk of this uncertain environment, we can assume mimetic isomorphism i.e. imitation of farm practices is occurring. Lastly, normative isomorphism could also occur due to professional networks, agriculture services and educational institutions which encourage organic farmers to adopt uniform practices.

2.2. The regulatory framework for organic farming in Europe

Today's regulatory framework of organic farming, the Common Agricultural Policy (the "CAP"), revolves around three main areas of action combined into two key pillars. The first pillar being direct farmer income support as well as market measures and the second pillar being rural development. (European Council, 2024). However, it is important to visualise its origin and evolution over time as the CAP is a dynamic regulatory framework (European Council, 2024).

The CAP was adopted in 1962 after the World War 2 to counteract the consequences of the war in terms of food productivity, food access, farmer income and harmonisation of policies among European countries to have fair competition (Regulation (EEC) No 25, 1962; European Council, 2024a). To achieve these objectives, these regulations introduced an economic system where farmers were guaranteed a fixed price for their products as well as receiving aids in accordance with their productivity, while additionally, tariffs on external products were imposed (Regulation (EEC) No 25, 1962; Regulation (EEC) No 26, 1962; European Council, 2024a). Since then, numerous additions and amendments of the CAP have been introduced (European Council, 2024; European Council, 2024a), such as quota systems to avoid overproduction (Regulation (EEC) No 804, 1984; Regulation (EEC) No 856, 1984) and the direct income support to farmers and new obligations to protect the environment and food quality (Regulation (EEC) No 2078, 1992).

Moreover, approaching current times, the first reform of the CAP in 2013 integrated further sustainability measures (i.e. payments contingent on eco-friendly practices), support for smaller and young farmers, and enhanced rural development. (European Council, 2024a; Regulation (EU) No 1307, 2013; Regulation (EU) No 1305, 2013). Finally, the post-2020 reform, which is active since the 1st of January 2023 and should last until 2027, revolves around new strategic approaches giving member states a degree of autonomy to create their own strategic plans tailored to their needs, but which must be still in line with the overall common policy (European Council, 2024a; Regulation (EU) No 2115, 2021).

The objectives of the Walloon strategic plan were established after the 2020 reform and emphasise the support of small family farms, favourably influencing the generational passing of farms, guaranteeing the income of farmers, supporting equally all types of agriculture, conserving and enhancing the food autonomy, relocating the value-added of production and contributing to the broader climate and sustainability goals (Public Service Wallonia (SPW), 2024; CAP Strategic Plan Wallonia, 2023). Furthermore, while farmer funding is still conditional on compliance with EU environmental and climate laws, the new CAP further promotes eco-friendly farming practices with various rewards in form of direct payments (European Council, 2024a; Regulation (EU) No 2115, 2021; Regulation (EU) No 2116, 2021; CAP Strategic Plan Wallonia, 2023).

The current overall allocated CAP budget for the time period 2023 to 2027 is €386,6 billion, which represents on average around 20% to 25% of the yearly total European budget (European Commission, 2024), and is split between two funds (commonly referred to as "pillars"): one to support farmer income ("EAGF" or European Agricultural Guarantee Fund, €270 billion) and market measures (also "EAGF", €21,1 billion) while the other fund focuses on rural development ("EAFRD" or European Agricultural Fund for Rural Development, €95,5 billion) (European Commission, 2024c; Regulation (EU) No 2116, 2021). The Belgian, more specifically, the Walloon CAP budget amounts to €1,862 billion, of which €1,328 billion are allocated to the first pillar (income support and market measures) and €534 million for the second pillar (rural development) (European Commission, 2024c; Public Service Wallonia (SPW), 2024).

To summarize, today's regulatory framework of organic agriculture mainly revolves around the regulation (EU) 2021/2115 (rules on support and CAP strategic plans), regulation (EU) 2021/2116 (specific to the financing and management of the CAP), regulation (EU) 2018/848 (organic production and labelling), regulation (EU) 2020/464 (application rules of certain elements of regulation (EU) 2018/848) complemented by the Walloon Decree of October 13, 2022 and the Strategic CAP Plan of Wallonia (2023) and lastly, regulation (EU) 2017/625 on organic controls.

Considering the scope of this thesis being organic livestock farms in Wallonia, details of the most important elements of these regulations affecting specifically Walloon livestock farms will be described. Furthermore, as there are numerous livestock species, the focus is on the main breeds present (conventional and organic) in Wallonia i.e. Cattle (Bovine, dairy and non-dairy) and Sheep (dairy) (FADN Public Database, 2022; CAP Strategic Plan Wallonia, 2023).

The first part on organic certification has the aim to describe the outlay of the general framework of organic certification and its cost, whereas the following parts will focus on the subsidies and the specificities of the types of livestock farm practices.

2.2.1. The organic certification

Key steps of organic certification

Before the start of any activity, the agricultural business must be registered at the *Banque-Carrefour des Entreprises* (the "BCE") (Walloon Decree, 2022).

Furthermore, the agricultural business must establish a supervision contract with one of the accredited control bodies in Wallonia (which will be described in the next section) for the category of products related to the business activity (Walloon Decree, 2022).

Every agricultural business wanting to make available organic products on the market (or in the process of organic conversion) needs to notify its activities to the Quality and Animal Welfare Directorate of the Public Service Wallonia of Agriculture, Natural Resources and Environment (the "SPW ARNE") (Walloon Decree, 2022). This marks the beginning of organic business activities as well as the conversion period, which will begin once the directorate verifies and communicates the date of entry in the control system SIGEC (Integrated System of Management and Control or *Système intégré de gestion et de contrôle*) or SANITEL (FASFC tracking system) (Walloon Decree, 2022).

The accredited control bodies

In Belgium, there are five independent control bodies that are BELAC (Belgian Accreditation Body, as defined under the Royal Decree of January 31, 2014) accredited: CertiOne, Certisys, Le Comité du lait, FoodChain ID and Tüv-Nord Integra (Walloon Decree, 2022).

The different types of controls: the first control

After receiving the notification by the agricultural business, the first control is issued by the control body no later than thirty business days starting from the beginning date of the agreed control regime. At this first control, the farmer must be able to give a complete description of the organic production, and the auditor needs to have access to the entire farm infrastructures and all the farm specific documents. In essence, a complete review of the farm activity is conducted (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

The different types of controls: the annual control

Similarly to the first control, the annual control does a complete review of the farm system. As to give a bit more detail, it is conducted on-site (i.e. physical inspection of the farm) following an appointment. During the audit, records as well as the traceability of inputs and veterinary care are verified based on the farm's accounting records. All management details of the plots (crop logbook) and animals (livestock logbook) are verified with the on-site reality (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

Moreover, the auditor will inspect elements such as the documents identifying the animals, the production plan, elements of the accounting corresponding documents (e.g. invoices), balance sheet of materials (e.g. livestock feed and what proportion is bought versus auto produced, description and quantities of various other inputs used). In addition, the auditor inspects the livestock facilities and plots to verify the compliance with the declarations, e.g. regarding density requirements and access to pastures and outdoor areas (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

The different types of controls: the spontaneous control and sampling

This type of control can occur spontaneously (i.e. without prior appointment) and inspects only a few points from the annual control. Additionally, sampling can be done on livestock feed, the soil, the milk, the meat and various other elements to ensure that there are no unauthorized substances in the organic production (e.g. for milk and meat: anti-biotics, growth hormones, food preservatives, artificial flavouring, nitrates) (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

If an unauthorized substance as described by regulation (EU) 2018/848 has been detected during controls in line with regulation (EU) 2017/625 , the origin and the cause of it will be inspected and the product will temporarily be forbidden on the market or be used elsewhere until official results of the inspection have been communicated (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

For information purposes, please find in appendix 1 the other types of controls that can occur.

Walloon policies on the frequency of controls

The frequency of control of every agricultural operator is determined based on a risk analysis which can vary based elements such as (but not limited to) the degree of mixed (organic/non-organic) production and the recency of certification (Walloon Decree, 2022). Furthermore, the Walloon decree of October 13, 2022, indicates that every agricultural operator needs to be controlled annually.

Yet, the European regulations (EU) 2018/848 allows for a greater time between on-site controls (a maximum of every 24 months) if during the previous controls the operator has not had any compliance issues for three consecutive years. However, the Walloon Decree of October 13, 2022, has stricter measures that complement the European regulation. Indeed, to be recognized as a low risk profile and to be granted more time between on-site controls, the Decree states on page 30 that the agricultural operator needs to respect the following:

- The agricultural business only produces organic products and does not have more than three workers;
- The agricultural business has the organic certification for at least five years;
- The agricultural business does not exceed 700 000,00 € of organic sales revenue;
- The agricultural business has never asked for any organic practice waiver to its auditor (e.g. special authorization to introduce non-organic livestock to initially constitute the herd);
- The agricultural business has not been subject to any complaints;
- The agricultural business does not employ temporary workforce;
- The agricultural business does not outsource any activities.

Please find in the appendix 2, the first point (general offenses) of chapter 2 of appendix 8 of the Walloon Decree of October 13, 2022, which lists and describes the elements that can be marked as non-compliant by the auditor. The whole list can be found in chapter 2 of appendix 8 of the Walloon Decree of October 13, 2022.

The cost of certification and fee calculations

To cover the incurred costs by the control bodies, an annual fee is determined which is owed by the producers. It is based on a point system found in appendix 4 of the Walloon Decree, 2022, with minimum and maximum ceilings. The points need to be multiplied by a factor ranging from 0,153 € (minimum ceiling) (Walloon Decree, 2022, p.27) to 0,232 € (maximum ceiling) (Walloon Decree, 2022, p.28) to be converted to euros (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

The resulting fee are to be paid annually, do not include value added tax ("VAT") and are adjusted annually based on the health index for September of the previous year compared to that of September 2021. Moreover, the annual fee for an agricultural producer is composed, on one hand of a fixed base number (1 670 points) (Walloon Decree, 2022, Appendix 4) and, on the other hand, a variable number. However, in any case the minimum fee will always be of 2 500 points (Walloon Decree, 2022, p.24) i.e. 2 500*0,153€ = 383€ (minimum ceiling) or 2.500*0,232€ =580€ (maximum ceiling) (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017). Furthermore, the variable number is determined based on the area of the pastures, meadows, plots and the number of livestock per category (Walloon Decree, 2022).

Please find in appendix 3 an example calculation inspired by a vulgarization document of BioWallonie (2024).

Please find in the appendix 4, the appendix 4 of the Walloon Decree of October 13, 2022, which lists the elements that are used for the variable point attribution in scope of the thesis.

2.2.2. A comparison of organic and conventional financial aids

Before going into specific figures, it is important to understand who the beneficiaries of these aids are, what plot areas are covered and what other criteria there are.

The beneficiaries of financial aids

To receive the financial aids, the person needs to be recognized as an active farmer as per article 3, §1, of regulation (EU) 2021/2115 (CAP Strategic Plan Wallonia, 2023): *"Farmer means a natural or legal person, or group of natural or legal persons, regardless of the legal status granted to such a group*

and its members under national law, whose holding is situated within the territorial scope (…) and who exercises an agricultural activity as determined by the Member states in accordance with article 4, §2 of this regulation". And conducts an agricultural activity as per article 4, §2 of regulation (EU) 2021/2115 :*"(…) shall be determined in such a way that it allows to contribute to the provision of private and public goods through one or both of the following methods: (a) the production of agricultural products, which includes actions such as raising animals farming or cultivation (…). (b) the maintenance of agricultural area in a state suitable for grazing or cultivation, without preparatory actions going beyond the use of usual standard agricultural methods and machinery".*

Moreover, the applicant farmer needs to be identified in the SIGEC and needs to possess the right of payment which is granted through a single application form submitted to the public Walloon authorities, more specifically, the regional finances (Walloon Decree, 2022; CAP Strategic Plan Wallonia, 2023).

Furthermore, the farmer needs to adhere to the "good agricultural and environmental conditions" (*Bonnes Conditions Agricoles et Environnementales* or "BCAE") and respect the "regulatory requirements for management compliance" (*Exigences Réglementaires en Matière de Gestion* or "ERMG") (Regulation (EU) No 2115, 2021; CAP Strategic Plan Wallonia, 2023). In this thesis, the required base practice (BCAE and ERMG) will not be covered as they will not contribute meaningfully to the overall objective of said thesis. However, the specific organic livestock practices will be elaborated upon in a later section ("2.2.3. Specific organic practices for livestock") which will highlight key elements of organic livestock related practices.

In addition, organic farmers need to submit another application, specific for organic farming support. The applicant must have notified the administration of their organic production activity (as described in chapter "2.2.1. The organic certification") no later than December 31 of the year preceding the first year of the commitment (Walloon Decree, 2022; CAP Strategic Plan Wallonia, 2023).

Additionally, organic farmers need to adhere to the practical methods of organic agriculture broadly described under the regulation (EU) 2018/848 and of course be certified (Regulation (EU) No 848, 2018; Regulation (EU) No 2115, 2021; CAP Strategic Plan Wallonia, 2023). The organic farming methods vary between every farm type. The organic farming practices in scope of the thesis will be described in the segment "2.2.3. Specific organic practices for livestock".

The Areas

The financial support is granted for plot areas that fall under de definition of agricultural area of article 4, §3, of regulation (EU) 2021/2115 (CAP Strategic Plan Wallonia, 2023): "Agricultural *land shall be determined in such a way as to comprise arable land, permanent crops, and permanent grassland (…). The term "arable land", "permanent crops", and "permanent grassland" shall be further specified by Member States within the following framework: (a) "Arable land" shall be land cultivated for crop production or areas available for crop production (…). (b) "Permanent crops" shall be non-rotational crops, other than permanent grassland and permanent pastures, that occupy the land for five years or more and that yield repeated harvests (…) (c) "Permanent grassland" and "permanent pastures" (together referred to as "permanent grassland") shall be land that is used to grow grasses or other herbaceous forage naturally (…) that have not been included in the crop rotation of the holding for five years (…)".*

To receive the base payments for both conventional and organic farmers, (in addition to being considered an active farmer and having the right of payment as described in the last section) the plots need be located in Wallonia and need to respect the minimum area of an agricultural plot in Belgium

(one hectare) (CAP Strategic Plan Wallonia, 2023; Public Service Wallonia (SPW), 2024). One hectare of registered and eligible land grants one unit of base payment (CAP Strategic Plan Wallonia, 2023; Public Service Wallonia (SPW), 2024).

Additionally, to benefit from organic financial aids, the plot areas must also be organically certified (cfr. to "2.2.1. The organic certification" and to "2.2.3. Specific organic practices for livestock") (Regulation (EU) No 848, 2018; Regulation (EU) No 2115, 2021; CAP Strategic Plan Wallonia, 2023).

Other criteria specific to organic livestock farmers

To ensure the organic financial support is not granted to livestock farmers that do not meaningfully produce goods, an additional criterion specific for the organic financial support concerning the category of grassland and pastures exists (the category will be described later): the farmer needs to have at least 0,6 LU (Livestock Unit or *Unité Gros Bétail*, "UGB") per ha of plots dedicated to fodder and grassland. If the farmer cannot meet this requirement, the organic financial support for the category grasslands is prorated to the actual LU/ha (CAP Strategic Plan Wallonia, 2023).

Please find in the appendix 5 a table of all the corresponding LU (CAP Strategic Plan Wallonia, 2023, p.884).

Moreover, the organic farmer needs to commit to a minimum of five years without interruption and will be granted, additional support for conversion (CAP Strategic Plan Wallonia, 2023).

Overview of the various aid figures specific to organic and conventional livestock farmers

The following figures are sourced from the Strategic CAP Plan of Wallonia (2023) but merged in a self-created table. The following table has the purpose of giving a broad overview of aids that can be linked to livestock farming. Additional details and reasoning of key aids will be described after.

Financial year 2024 **Civil year 2023**	**Conventional** (amounts granted yearly)	**Organic** (amounts granted yearly)
Base payments	113,64€/ha (degressively based on brackets)	
Redistribution payments	143€/ha (for the first 30ha)	
Livestock support	178€/female meat cattle (minimum of 10 but capped at 145 animals), 25€/dairy cow (minimum of 10 but capped at 50 animals), 150€/hybrid cattle (minimum of 10 but capped at 100 animals), 27€/ovine (minimum of 30 but capped at 400 animals)	
Organic maintenance aid	N/A	For grassland and fodder crop 0 to 60ha: 220€/ha Over 60ha: 132€/ha

Organic conversion aid (In addition to the organic maintenance aid)	N/A	For grassland and fodder crop 150€/ha
Vulnerable zone aid (In addition to both organic aids above)	N/A	For grassland and fodder crop 0 to 60ha: 40€/ha over 60ha: 24€/ha
Young farmer support (aged less than 40 years +364 days)	First 50 ha: 140€/ha Following 50 to 100 ha: 80€/ha	
Eco-schemes: Long-term soil coverage	Threshold of entry: 15€/ha Intermediate threshold: 30€/ha Optimal threshold: 45€/ha	
Eco-schemes: Environmentally friendly crops	380€/ha or 440€/ha depending on crop variants	
Eco-schemes: Ecological networking	Base amount: 350€/ha but adjusted based on a coefficient depending on the crop	
Eco-schemes: Input reduction	80€/ha	N/A: pesticide reduction is inherently not compatible with organic farming
Eco-schemes: Permanent grassland conditional on livestock density	A base of 40€/ha Additionally, 18€ to 68€ depending on livestock density	
Agri-Environmental and climate schemes (“AECS”): Keeping of endangered local breeds	200€/endangered cattle breed 40€/endangered ovine breed	
Agri-Environmental and climate schemes (“AECS”): Adapted parcels	1 600€/ha	Not combinable with organic payments
Agri-Environmental and climate schemes (“AECS”): High nature value grassland	470€/ha Or 250€/ha if the plot is also covered under “Natura 2000”	

Agri-Environmental and climate schemes (“AECS”): Natural grassland	220€/ha	
Agri-Environmental and climate schemes (“AECS”): Grassed plot borders	1 100€/ha	Not combinable with organic payments
Agri-Environmental and climate schemes (“AECS”): Leftover standing cereal	2 400€/ha: Minimum of 0,5ha and maximum of 10ha total area and a minimum of 0,02ha to 0,5ha maximum, with 100 meters of separation between standing cereal	
Agri-Environmental and climate schemes (“AECS”): Fodder autonomy	60€/ha if the eligible area is under 1,4 LU/ha 30€/ha if the eligible area is under 1,8LU/ha	
Natura 2000	460€/ha Or 1 200/ha	Not combinable with organic payments
Investment aids: Support for **productive** investments in agricultural holdings	Base amount: 10% In addition, various other elements but can never exceed 40%.	Same as conventional But additionally: +2,5% if in conversion to organic, +2,5% if a part of the activity is organic, +5% if entirely organic
Investment aids: Support for **non-productive** investments in agricultural holdings	Up to 100% of the “non-productive investment” and at a maximum 30 000€	

Figure 1: Table illustrating the different aids that may apply to livestock farming (the table is self-created with data sourced from the CAP Strategic Plan of Wallonia (2023)).

The general idea of these farming aids is to incentivise farmers to adopt farming practices that are in line with the overall objectives of the CAP Strategic Plan Wallonia (2023) which are heavily skewed towards environmental protection, restoration and the support of smaller family farms. However, the constraints imposed by the practices result in financial losses for the farmers. Thus, aids are granted to compensate, entirely or partly, the occurring financial losses (CAP Strategic Plan Wallonia, 2023).

The aids fall into one of the following categories: direct payments, organic aids, aids linked to the activity, eco-schemes, agri-environmental and climate schemes ("AECS"), and investment aids. However, only key aids in scope of the objective of the thesis will be described in detail hereafter as to not clutter unnecessarily the literature review.

Direct payments

Base payments play a key role in reducing income disparities between farmers and non-farmers (disparities are not entirely covered because of budget constraints and the existence of other aids), offering financial stability particularly during extended periods of low market prices, and promote the redirection of support to small and medium sized farms with degressive payments and caps based on total granted aids (CAP Strategic Plan Wallonia, 2023).

With a base amount of 113,64€/ha, the payments are progressively reduced based on the total amount of base payments; 30% reduction for the bracket between 60 000€ and 75 000€, 85% reduction for the bracket between 75 000€ and 100 000€, and 100% reduction over 100 000€. (CAP Strategic Plan Wallonia, 2023). The first bracket is estimated, between 2023 and 2026, to impact 5 farms, the second 6 farms and the last bracket only 1 farm (CAP Strategic Plan Wallonia, 2023).

Redistribution payments aim to support smaller farms as these payments have a positive impact on farms of 30ha and 30ha to 60ha of utilizable farmland. It is important to note that these payments reduce the overall available budget for the base payments (hence the term "redistribution") and therefore have a negative impact on larger farms (and a minor impact on very small farms) (CAP Strategic Plan Wallonia, 2023).

Considering that in 2019, the median utilizable farmland in Wallonia is 43,98ha, the majority of farms will benefit from these aids. Moreover, 39% of farms smaller than 30ha are livestock-related, thus meaning a significant portion of these aids will benefit those farms (CAP Strategic Plan Wallonia, 2023).

Young farmer supports (for farmers less than 41 years old) play an important role in attracting young farmers and developing their farming activities. The agricultural sector seems to face severe demographic challenges as the population is the oldest among all sectors and transmission rates of farms are low (CAP Strategic Plan Wallonia, 2023). Moreover, young farmers tend to have significantly higher levels of debt. Yet, their activities are managed more efficiently but their income remains below that of farmers over the age of 41. Excluding CAP subsidies, the income disparity amounts to approximately 160€/ha whereas the aids amount to 140€/ha for the first 50ha and 80€/ha for the following 50 to 100ha (CAP Strategic Plan Wallonia, 2023).

Organic aids

The following interventions are granted to organic farmers (at least a five-year commitment) that apply organic farm practices as defined in regulation (EU) 2018/848 and addressed in "2.2.3. Specific organic practices for livestock". Organic farming drives farm autonomy and plays a key role in environmental protection, restoration, climate change, water quality and biodiversity, and thus aligns strongly with the objectives of the CAP (CAP Strategic Plan Wallonia, 2023).

Organic maintenance aids compensate the revenue losses and cost increases occurring by applying organic practices. However, estimations of the Public Service Wallonia in the strategic plan indicate that the aids (for grassland and fodder crop i.e. concerning livestock) of 220€/ha (for the first

60ha) and 132€/ha (over 60ha) only compensate 88% and 53% of the losses respectively (CAP Strategic Plan Wallonia, 2023).

Organic conversion aids are of key importance. During the conversion period, the farmer is under organic constraints (revenue losses and cost increases) but cannot market his products as organic (Regulation (EU) No 848, 2018) and therefore loses out, additionally, on the organic price premia. The estimated monetary losses from an organic farm in conversion compared to one in maintenance is of 200€/ha. Yet, the aids granted for conversion are 150€/ha and thus cover only 75% of the losses (CAP Strategic Plan Wallonia, 2023).

Vulnerable zone aids are granted additionally to organic farms that are located in so called vulnerable zones. Vulnerable zones are defined as zones that significantly lack organic agricultural activity, resulting in a severe impact on the environment and especially water quality in those areas (CAP Strategic Plan Wallonia, 2023). The vulnerable zones in Wallonia are split as follows:

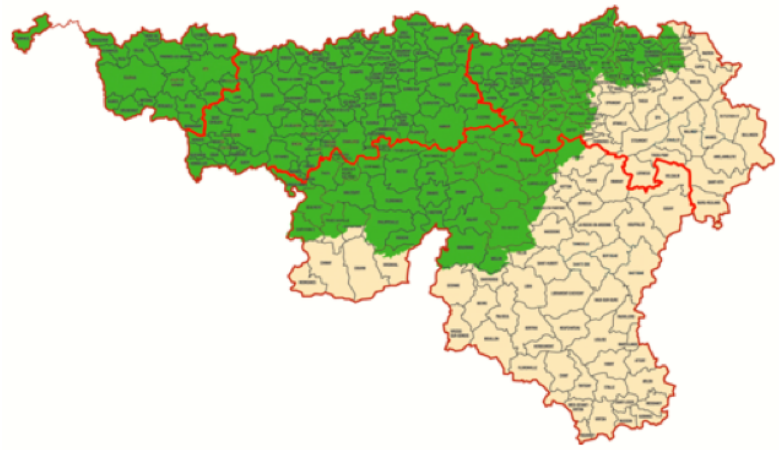


Figure 2: Vulnerable zones coloured in green in Wallonia in 2019 (CAP Strategic Plan Wallonia, 2023, p.872)

As illustrated in green on figure 2, the zones deemed vulnerable cover approximately more than 70% of the total agricultural area of Wallonia, yet account for only 30% of organic agricultural area. In other words, organic agriculture is concentrated in non-vulnerable zones (yellow on figure 2) where organic activity approximately accounts for 20% of total agricultural activity, while in vulnerable zones it only represents 5% (CAP Strategic Plan Wallonia, 2023). This is precisely shown in the following figure 3.

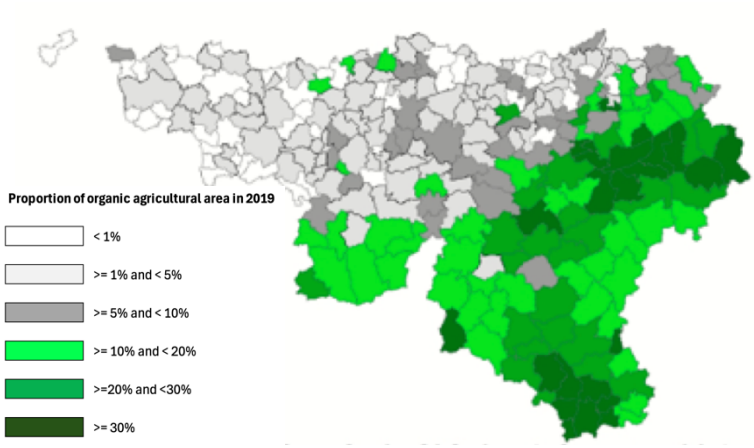


Figure 3: Importance of organic agriculture in Wallonia in 2019 (CAP Strategic Plan Wallonia, 2023, p.873)

Figure 3 illustrates the percentage of organic agricultural activity; where the colour white represents less than 1%, light grey between 1% and 5%, grey 5% to 10%, light green 10% and 20%, green 20% and 30% and dark green more than 30% (CAP Strategic Plan Wallonia, 2023).

In essence, additional aids are granted to these vulnerable zones to incentivise farmers to adopt organic practices and thus rebalance the disproportionate organic area distribution and enhance the lacking environmental protection in those areas (CAP Strategic Plan Wallonia, 2023).

Aids linked to the production

Livestock support is one of the sectorial financial aids granted based on the type of livestock and the applying constraints i.e. a minimum and maximum number of animals (cfr. to figure 1). Walloon livestock related production is interconnected with employment, environmental (unusable land for crops can still be used by livestock to produce goods as well as lower carbon emissions compared to arable land), cultural and societal benefits (CAP Strategic Plan Wallonia, 2023).

To begin with, the financial aids are targeted towards bovine meat as it is one of the major agricultural productions in Wallonia and is linked to numerous employments cascading directly from its production (slaughterhouses, wholesalers, distribution…) (CAP Strategic Plan Wallonia, 2023). However, because of lacking revenues, cattle herds are decreasing year after year and are thus at risk of disappearing gradually from the Walloon territory, impacting the entire value chain negatively (CAP Strategic Plan Wallonia, 2023).

In addition, dairy cows are also targeted with sectorial aids. The dairy sector is of key importance in the Walloon landscape. Generally, Walloon dairy farmers are self-sufficient in terms of livestock feed/fodder but are therefore exposed to climate volatility, leading to a lack of feed for the cows and thus a need to supply the feed externally, exponentially increasing costs (CAP Strategic Plan Wallonia, 2023). Moreover, the actual salary of a dairy farmers is severely behind the minimum rate of an eighteen-year-old normal labourer. When translated to euros per 100 litres of milk (€/100L of milk), the difference between farmer income and labourer is of 2,9€/100L of milk, requiring thus an estimated aid of 197€ per dairy cow per year. However, the actual aids granted to dairy farmers are 25€ per dairy cow (CAP Strategic Plan Wallonia, 2023).

Furthermore, aids granted for hybrid cattle (i.e. meat and dairy) have a similar justification and description as meat cattle and dairy cows (CAP Strategic Plan Wallonia, 2023).

Finally, to encourage diversification and further develop the yearly growth, financial support is also granted to ovine livestock. Indeed, this type of livestock synergies well with bovine farms (revenue diversification) but also with crop production as normally unexploitable fodder resources (e.g. after crop harvest) can be used by ovine livestock (CAP Strategic Plan Wallonia, 2023).

Eco-schemes

Eco-schemes are measures to specifically encourage further environmentally friendly practices (CAP Strategic Plan Wallonia, 2023). Within the scope of this thesis, only one of the eco-schemes, which is considered the most relevant to livestock, has been chosen for further description. In fact, the following echo-scheme is granted to approximately 80% of all livestock farms in Wallonia (CAP Strategic Plan Wallonia, 2023).

The permanent grassland conditional on livestock density aid is twofold. The first part of the financial support encourages the preservation and protection of grasslands and heavily limits phytosanitary product use (a few exceptions exist for very specific and limited use cases). The base support of the first part is 40€/ha of grassland (a minimum of 0,6 LU/ha of fodder and grassland is required) (CAP Strategic Plan Wallonia, 2023).

The second part of this eco-scheme focuses on promoting lower livestock unit (LU) density per hectare of grassland and fodder crop area. Without mentioning the positive environmental impact (water quality, air quality and greater soil biodiversity), lowering LU density also encourages higher levels of feed/fodder autonomy and therefore enhances resilience of farms when facing droughts, leading to a lower autonomous feed/fodder production. Moreover, this second part of the aid scales degressively with LU density i.e. financial support increases the lower the LU density. As an example, 68€ per hectare of grassland is granted if the LU per hectare of fodder and grassland is between 0,6 and 2, whereas 18€/ha of grassland is granted if the LU/ha of fodder and grassland is between 2,8 and 3. However, reducing LU density leads to inevitable revenue loss which this aid is meant to compensate, though not fully (CAP Strategic Plan Wallonia, 2023).

Please find in the appendix 5 a table of all the corresponding LU (CAP Strategic Plan Wallonia, 2023, p.884).

Agri-environmental and climate schemes ("AECS")

For the AECS, fodder autonomy has been chosen as the most relevant for the thesis. Indeed, the CAP Strategic Plan Wallonia (2023) as well as the later interviews of macro actors emphasise the importance of feed/fodder autonomy. Additionally, the CAP Strategic Plan Wallonia (2023) also mentions that this aid will impact most of the livestock farms in the Walloon region.

Fodder autonomy financial support has a very similar objective to the latter eco-scheme i.e. promoting the reduction of LU density and therefore enhancing the autonomy, resilience and environmental impact of livestock farms. While similar, there is a difference between the eco-scheme and the AECS; the AECS emphasizes further (and solely) on the autonomy of farm fodder by constraining additionally the LU density/ha (60€/ha or 30€/ha of grassland if LU density/ha of fodder and grassland is less than 1,4 or 1,8 respectively). However, the estimated loss of the density reduction is not fully compensated by the financial support (CAP Strategic Plan Wallonia, 2023).

2.2.3. Specific organic practices for livestock

As mentioned earlier, the livestock analysed in this thesis are of bovine and ovine type as they represent the majority of livestock farms in Wallonia (FADN Public Database, 2022; CAP Strategic Plan Wallonia, 2023). This segment is presented in a self-created, self-explanatory table format in order to structure and illustrate the information comprehensively and succinctly.

	Bovine	Ovine
Organic conversion (Regulation (EU) No 848, 2018)	<u>Simultaneous whole farm conversion (animals and grassland/fodder):</u> • 2 years if the animals are only fed with own farm produce or organic feed <u>Non-organic animals can be introduced in fully organic farms with a conversion of:</u> • 12 months for meat bovine but at least 75% of their lifetime under fully organic farms • 6 months for dairy cows <u>Plots or plots newly introduced:</u> • 2 years for grassland and fodder crop plots	<u>Simultaneous whole farm conversion (animals and grassland/fodder):</u> • 2 years if the animals are only fed with own farm produce or organic feed <u>Non-organic animals can be introduced in fully organic farms with a conversion of:</u> • 6 months for ovine (dairy) <u>Plots or plots newly introduced:</u> • 2 years for grassland and fodder crop plots
Acquisition of livestock (Regulation (EU) No 848, 2018)	<u>Establishment of the first herd:</u> • Already organic livestock • If unavailability of organic livestock: non-organic cattle aged less than 6 months (reproductive purposes only) are allowed <u>Expansion or renewal of the herd:</u> • With organic livestock • If unavailability of organic livestock: non-organic heifer (bovine that have not given birth) up to a maximum of 10% of total livestock are allowed (reproductive purposes) • If unavailability of organic livestock and if the farm has less than 10 bovines, the number of non-organic heifer is limited to 1 per year • The percentage of the previous two constraints may be increased to 40% if there is an intention of: (a)	<u>Establishment of the first herd:</u> • Already organic livestock • If unavailability of organic livestock: non-organic ovine aged less than 60 days (reproductive purposes only) are allowed <u>Expansion or renewal of the herd:</u> • With organic livestock • If unavailability of organic livestock: non-organic ewe lamb (ovine that have not given birth) up to a maximum of 20% of total livestock are allowed (reproductive purposes) • If unavailability of organic livestock and if the farm has less than 5 ovines, the number of non-organic ewe lamb is limited to 1 per year • The percentage of the previous two constraints may be increased to 40% if there is an intention of: (a)

	significant herd expansion, (b) replacing animal breeds, (c) new specialisation of the herd • For strictly reproductive purposes, non-organic breeding bulls can be acquired • Non-organic animals need to be raised organically and need to be kept separately or be identifiable until conversion	significant herd expansion, (b) replacing animal breeds, (c) new specialisation of the herd • For strictly reproductive purposes, non-organic breeding ram can be acquired • Non-organic animals need to be raised organically and need to be kept separately or be identifiable until conversion
Animal breeds (Regulation (EU) No 848, 2018)	• Animal breed selection should be done regarding their ability to adapt to environmental conditions, vitality, resistance to diseases, and their maternal qualities (e.g. sufficient milk production). • Native races are recommended • Avoidance of breeds that promote difficult births requiring a caesarean (e.g. Belgian Blue (bovine), Texel Culard (ovine))	
Animal health and veterinary interventions (Regulation (EU) No 848, 2018)	<u>Focus on preventive measures (prophylaxis)</u>: • Selecting resistant animal breeds • Adapted herd management that avoid possible contamination • High quality nutrition adapted to the needs of the livestock (e.g. age, sex…) • Livestock density and shelter (enough space, good hygiene…) • **Preventive** use of veterinary drugs (e.g. antibiotics, synthetic drugs) are forbidden • Growth hormones or any other hormone altering substances are strictly forbidden <u>Veterinary interventions:</u> • If an animal is diseased or injured, immediate medical attention is required to limit animal suffering • Phyto therapeutic and/or homeopathic treatments are favoured • If Phyto therapeutic and homeopathic treatments are inappropriate, using synthetic drugs and antibiotics is allowed if it has a real therapeutic effect for the animal • Animals treated more than three times in twelve months with antibiotics and/or synthetic drugs, or treated once if the animal is less than one year old, aren't considered organic anymore and thus need to undergo conversion as described in a previous segment • Caesareans should be kept to a minimum (no more than 20% of births for bovine) as it requires antibiotic and synthetic drug intervention	
Shelter and animal welfare (Regulation (EU) No 464, 2020; Regulation (EU) No 848, 2018)	• The design of the buildings (insulation, heating and ventilation) must ensure: • Air circulation, dust levels, temperature, relative humidity, and gas concentration must be adequate and not harmful to the animals • A clean and dry resting area, without slatted floors, covered with bedding (straw or other natural materials suitable for organic farming • Adequate ventilation and abundant natural lighting	

	• Easy access to food and water distribution (sufficient numbers of drinkers and feeders) • A smooth, however non slippery solid surface (packed earth, concrete, etc.) with a maximum of 50% grids or slatted floors • Cages, boxes and enclosures with slatted floors are strictly forbidden • The overall livestock density does not exceed 170kg of organic nitrogen per year per hectare of farm surface • A minimum indoor and outdoor net available area per animal is required
Feed and nutrition (Regulation (EU) No 464, 2020; Regulation (EU) No 848, 2018; Regulation (EU) No 1165, 2021)	<u>General feed and nutrition:</u> • At least 70% of the feed is self-produced • If the previous point is not possible; organic feed needs to be sourced in cooperation with other organic farms in the region • Animals must have access to graze on grasslands/pastures whenever weather conditions permit • Animals must have access to outdoor areas during winter • The farming system needs to heavily utilise grassland/pastures, depending on the availability of grazing land during the different periods of the year • At least 60% of the dry matter in the daily ration must come from fodder (fresh, dried or ensiled) (can be decreased to 50% for a maximum of three months counting from the beginning of lactation for dairy cows) • The feed needs to be organic • The feed cannot contain growth inducing substances • The feed cannot contain genetically modified organisms (“GMO”) • To meet nutritional needs, livestock feed can be supplemented with certain substances compliant with article 24 of regulation (EU) 2018/848 and listed in regulation (EU) 2021/1165 <u>Young animals:</u> • Milk (preferably maternal milk) needs to be used for 90 days after birth for bovine and 45 days for ovine • The milk cannot be synthetic, nor can it be of vegetable nature
Grassland and fodder production (Regulation (EU) No 848, 2018; Regulation (EU) No 1165, 2021)	<u>Soil management and fertilization:</u> • Organic crop production uses soil tillage (soil manipulation by mechanical means) and cultivation practices that preserve or increase organic matter, improve soil stability and biodiversity and prevent soil compaction as well as erosion • Crop rotation is not needed for grassland and fodder production • Fertilization is done through livestock effluents (e.g. manure), preferably composted, which is required to be sourced from (any) organic livestock (a maximum of 170kg of nitrogen from effluents per year per hectare is allowed) • If the previous points do not suffice to meet the nutritional needs of the plants, substances compliant with article 24 of regulation (EU) 2018/848 and listed in appendix 1 and 2 of regulation (EU) 2021/1165 can be used. • The use of mineral nitrogen fertilizers is prohibited <u>Pest and weed control:</u> • Through natural predators • Mechanic/physical methods

	• Biofumigation (natural chemical properties of certain plants (e.g. mustard, radish and broccoli) • Traps • Thermal processes such as surface soil steaming up to a maximum depth of 10 cm • If previous points do not suffice, substances compliant with article 9 and 24 of regulation (EU) 2018/848 and listed in regulation (EU) 2021/1165 may be used

Figure 4: Table describing organic livestock farming practices for bovine and ovine (self-creation using regulations (EU) as shown in the first column)

3. Economic, financial and managerial considerations

3.1. Risk identification, aversion and risk management strategies

3.1.1. Risk aversion

Organic farmers are consistently found to be less risk averse than their conventional counterparts (Acs et al., 2009; Flaten et al., 2005; Kallas et al., 2009; Läpple & Rensburg, 2011; Tzouramani et al., 2014).

Risk aversion thus plays a significant role hindering the adoption of organic farming. Indeed, farmers who are highly risk-averse require significantly more subsidies to overcome both economic and non-economic barriers to conversion (Acs et al., 2009). Additionally, the potential risks associated with adopting new farming technologies can make farmers hesitant to switch to organic systems (Läpple & Rensburg, 2011). Therefore, organic farmers tend to be risk acceptant regarding the production challenges of organic practices (Tzouramani et al., 2014).

In addition, research suggests that farm-specific factors also influence risk tolerance and adoption rates. Farmers who are more incline to take risks, new farm managers, have secondary economic activities, or operate small and diversified farms in less favoured areas are more likely to adopt organic farming (Kallas et al., 2009). Nevertheless, country-specific triggers, such as differences in total gross margins between organic and conventional farming suggest a localized nature of adoption incentives as they may change based on the country (Musshoff & Hirschauer, 2008). For Belgium, such country-specific triggers have not been explored in the literature as of yet.

3.1.2. Risk identification

Production risk

To begin with, production risk is mainly linked to the variability of farm output (Tiedemann & Latacz-Lohmann, 2013). Production risk associated to weather, and climate are similar for both types of farms (Hanson et al., 2004; Labajova et al., 2022). Nevertheless, organic farmers rely on preventive measures to manage disease and pest risks as they lack access to quick chemical solutions. However, the reliance on chemicals may increase production risk for conventional farms as pest may develop resistance to substances used in conventional systems (Hanson et al., 2004).

Moreover, the literature suggests that a high source of production risk in both farm types is the land (Gardebroek et al., 2010) and increases to the land (i.e. increased area) and labour inputs (Tiedemann & Latacz-Lohmann, 2013). To add to this, soil quality and farm management practices are suggested to significantly influence production risk for both organic and conventional farms (Gardebroek et al., 2010), while an additional key hinderance for organic farmers is the respective distance of supply and delivery points (Home et al., 2019).

Input risk

Access to capital is suggested to be a risk for organic farmers as banks often lack familiarity with organic farms and thus face difficulties in assessing the creditworthiness of said farms which thereby makes it harder for organic farms to be granted financing for their activities (Hanson et al., 2004). Besides, organic farms seem to be particularly vulnerable to declining farm infrastructures such as

machinery repairs and services as well as shortage of adequate labour and expensive agricultural land (Hanson et al., 2004).

Organic marketplace risks

Organic farmers face significant market risks due to the instability of price premia, which may even drop in some cases (Hanson et al., 2004; Labajova et al., 2022). Additionally, some stores may show limited interest in offering organic products which reduces market access for organic farmers. (Hanson et al., 2004). Furthermore, while conventional farming does not account for environmental costs, organic farming does capture these costs into its production, resulting in higher prices. This may contribute to the perception some consumers have that organically produced goods are too expensive (Hanson et al., 2004). To add to this, as organic farmers are not allowed to market their products organically during the conversion period (Regulation (EU) No 848, 2018), their income is significantly lower during the transition resulting in an undeniable increase in risk (Kerselaers et al., 2007).

Agricultural policy risks

Research suggests that both organic and conventional farmers seem to identify institutional risks, especially linked to direct farm support payments and policies as their main concern (Flaten et al., 2005; Labajova et al., 2022). To add to this, Hanson et al. (2004, p.223) revealed that organic farms are exposed to risks related to "*inconsistent interpretation of rules, uneven rule enforcement and grey areas"* in the certification system. Besides, conventional farmers especially emphasize risks associated with input costs and animal welfare policies, whereas organic farmers further underline the risks related to organic support payments, price premia and regulations (Flaten et al., 2005).

3.1.3. Risk management strategies

Farm managers

As stated in the previous segment, farm management practices and decisions significantly influence production risk in both farm types (Gardebroek et al., 2010). Important risk management strategies for both organic and conventional farms involve financial management i.e. reducing production cost (Tzouramani et al., 2014), disease prevention (Flaten et al., 2005), insurance (Flaten et al., 2005; Tzouramani et al., 2014) and capital expenditures in machinery (Gardebroek et al., 2010). Moreover, more specifically aimed at organic farmers, farmer education is suggested to be an important risk management tool (Gardebroek et al., 2010) as well as using advisors for agricultural and economic aspects before committing fully to the organic transition (Tzouramani et al., 2014).

Cultural practices

Production diversification as well as organic farming practices inherently contribute to risk management by improving soil quality and increasing organic matter, which hedges against some production risks (Hanson et al., 2004)**.** Moreover, smaller sized organic farms allow farmers to manage risks more effectively (Hanson et al., 2004), which appears to be coherent given Tiedemann & Latacz-Lohmann (2013)'s findings suggesting that increases in land area increases production risk.

Additionally, many farmers seem to rely on an observatory approach i.e. identifying and addressing problems before they escalate further, which in turn has a reduced effectiveness the larger the managed land (Hanson et al., 2004).

Marketing strategies

Market risk management for organic farms can be achieved by diversifying commercial strategies and utilising multiple market channels including community arrangements, farmers' markets, small-scale markets and wholesale markets (Hanson et al., 2004). Furthermore, establishing strong relationships with local communities further support these actions (Hanson et al., 2004). Moreover, organic farms may leverage participation in cooperatives to secure shelf space in stores which enhances their visibility and competitiveness in the marketplace (Hanson et al., 2004).

Mutual support

An additional risk management practice revealed by Hanson et al. (2004) are support networks among organic farmers, where labour force, machinery, information and ideas are shared. While these support networks enhance resource efficiency, they also provide a platform for collective lobbying in order to advocate for organic farm interests (Hanson et al., 2004). Strong as well as diverse network, local supply chains and communities surrounding farm activities are thus of great importance (Darnhofer et al., 2005; Filippini et al., 2020; Hanson et al., 2004; Home et al., 2019).

3.2. Consumer preferences and willingness to pay

To begin this segment, it is important to note that organic retail sales diverge heavily in Europe, as illustrated in the following figure:

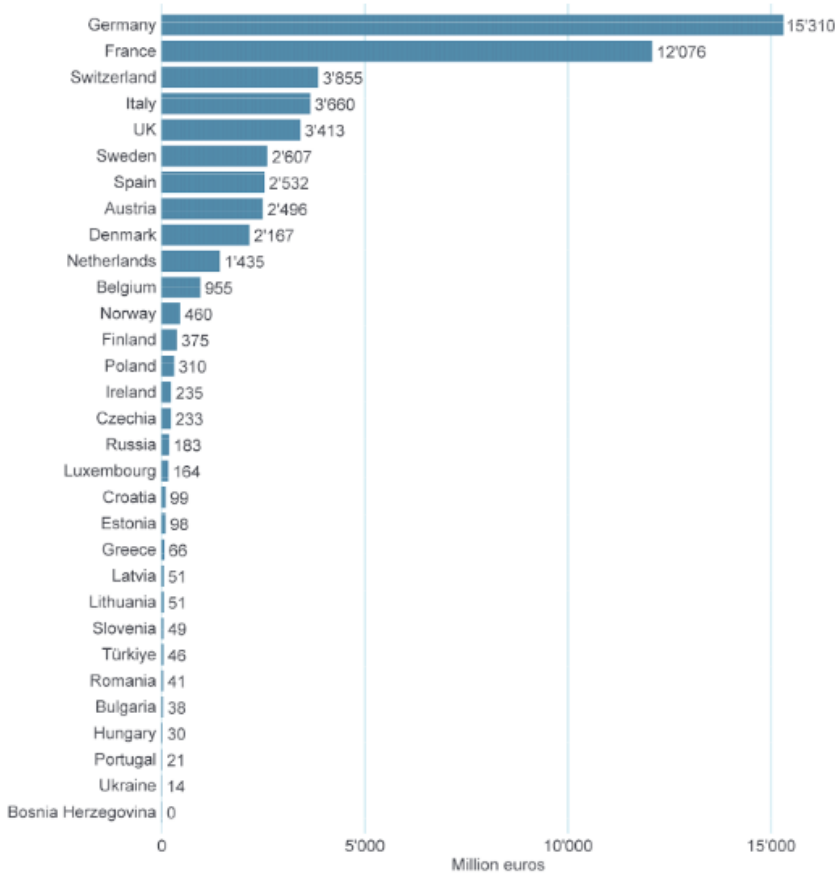


Figure 5: European organic retail sales by country in 2022 ("The World of Organic Agriculture Statistics and Emerging Trends 2024", FiBL & IFOAM Organics International, 2024, p.207)

As shown in figure 5, Belgium retail sales of organic products are significantly lacking behind most other European, and especially bordering countries (Germany, France and Netherlands). The two subsequent parts will describe the drivers and obstacles of organic food demand.

3.2.1. The drivers of organic product demand

To begin with, European consumers highly value the organic products and labels (Cubero Dudinskaya et al., 2021). Yet, it is important to note that the market share of organic food varies significantly across countries, not only because of food culture and cultural environmental concern but also factors such as the efficacy of distribution systems and price premia demanded for organic products (Thøgersen, 2010). Indeed, the efficiency and maturity of a country's market channels (e.g. supermarkets and farmers' markets) as well as to which extend and how early organic foods have been promoted are crucial drivers of demand as this enhances accessibility, visibility and lowers prices (Thøgersen, 2010).

Furthermore, a key driver of organic demand are the health aspects (e.g. no pesticides or hormone use) (Hughner et al., 2007), environmental concerns (although to a lesser extent than health aspects) (Hughner et al., 2007) including carbon footprint (Cubero Dudinskaya et al., 2021) and concerns over animal welfare (to a lesser extent that the latter) (Hughner et al., 2007). Besides, some consumers are willing to pay for even more ethical attributes beyond organic standards, such as animal welfare and regional production. However, these practices incur added costs which may further reduces competitiveness (Zander & Hamm, 2010).

Moreover, organic products are often *perceived* by consumers to be produced locally by smaller family-owned farms (even if it is not the case) (Hughner et al., 2007). Besides, consumers are highly favourable of the idea of supporting the local economy (Hughner et al., 2007). Indeed, beyond the organic products i.e. even for conventional products, a critical driver for demand is the fact that the product is locally or regionally produced (Cubero Dudinskaya et al., 2021; Filippini et al., 2020; Hughner et al., 2007; Janssen & Hamm, 2012).

Additionally, concerning more specifically livestock products, the literature suggests that the label in itself plays substantial role in consumer demand (Cubero Dudinskaya et al., 2021; Janssen & Hamm, 2012). In fact, the second most important (locally produced being the first) attribute for European consumers is the organic label (Cubero Dudinskaya et al., 2021). To add to this, trusted and well-known labels, clearly visible labels, and perceived strictness of organic standards as well as their surrounding control systems all increase consumer demand and generate higher price premia (Janssen & Hamm, 2012). Lastly, to further emphasize the local attribute, Janssen & Hamm (2012) suggest that local logos, may also be a crucial advantage to drive consumer demand for those products.

3.2.2. The barriers of organic product demand

Despite the positive attitude consumers have towards organic food, high prices are the main obstacle that limit consumer demand for those products (Hughner et al., 2007). While conventional farming does not reflect the true environmental cost associated with the products, organic farming incorporates these costs and is, as a result, often perceived as overly expensive by consumers, which leads to a competitive disadvantage compared to conventional products (Darnhofer, 2010; Filippini et al., 2020). Nevertheless, the price premia of organic products are vital for organic farmers to supplement their incomes and reduce their dependency on direct support payments (Läpple & Rensburg, 2011).

Moreover, other elements decreasing consumer demand for organic products highlighted in the literature are the lack of overall availability and inconvenience, insufficient marketing, scepticism of the organic label and cosmetic defects which have a higher chance of occurring in organic products. (Hughner et al., 2007). Some researchers also suggest that due to recent growths, organic market saturation may arise in the near future which would limit sales growth (Grovermann et al., 2021).

Lastly, beyond the organic and conventional debate, it is also suggested that current media has an impact on livestock related products by negatively affecting consumers' opinions. In fact, the positive side of the livestock industry (e.g. the fact that humans cannot extract value from grassland without livestock, protein production, cultural richness of a region) is often neglected by the media, while negative aspects are highlighted (Hocquette et al., 2018).

3.3. Farm profit

3.3.1. Defining farm profit

Multiple ways exist to assess economic performance of farms. Nevertheless, profit is widely recognized as a key indicator of economic success (Offermann & Nieberg, 2000). To have a uniform understanding of the profit and loss accounts (the "P&L") of farms, Offermann & Nieberg (2000) suggest basing the accounting elements on the Farm Accountancy Data Network (the "FADN"). Indeed, the FADN is frequently used in the literature for various economic and financial studies of European farms (Acs et al., 2009; Canavari et al., 2022; Czubak et al., 2021; Diederen et al., 2003; Grovermann et al., 2021; Kremmydas et al., 2023; Offermann & Nieberg, 2000; CAP Strategic Plan Wallonia, 2023; Kerselaers et al., 2007).

To begin with, the broad structure of farm profit can be illustrated as follows:

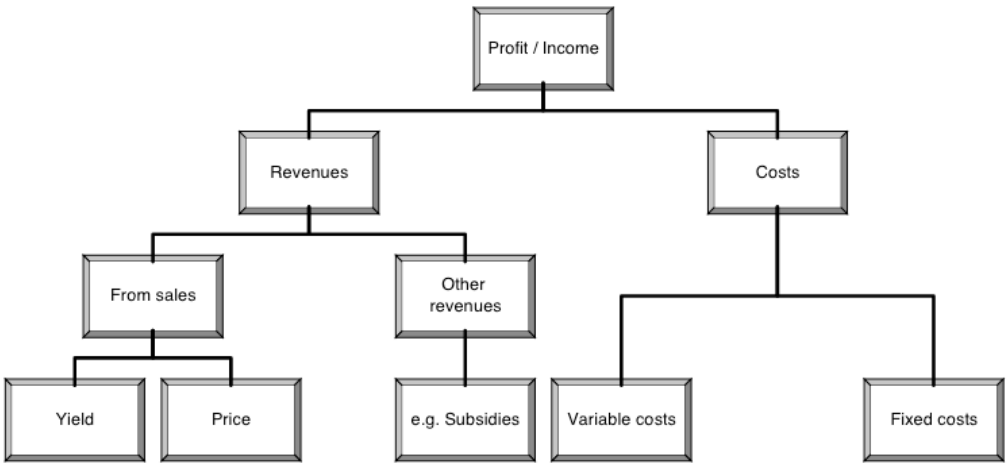


Figure 6: Components of farm profit ("Economic performance of organic farms in Europe", Offermann & Nieberg, 2000, p.11)

As shown in figure 6, the profit structure of farms does not diverge significantly from a general business. Nevertheless, while the general structure is similar, the FADN uses "Farm Net Income" or "Family Farm Income" as an indicator of remuneration attributed to the fixed factors of production strictly belonging to the family and the risks taken (FADN Public Database, 2022). The following figure

illustrates the composition of said Family Farm Income from Offermann & Nieberg (2000)'s work which bases itself on the FADN:

	+	Market revenues from sales of agricultural products
Farm	+	Subsidies, compensatory payments
output	+	Other farm income (rents, contract work for others, ...)
	+	Net value of change in stock
	+	Value of farmhouse consumption
	-	Specific costs / variable costs
	-	Overheads (including depreciation)
minus costs	-	Wages, salaries paid to seasonal and non-family workers
	-	Interest paid on borrowed capital
	-	Rent paid
	=	**Profit (family farm income)**

Figure 7: Family farm income ("Economic performance of organic farms in Europe", Offermann & Nieberg, 2000, p.8)

However, to narrow down the most appropriate P&L structure for the Walloon landscape, the following illustration is based on a database provided specifically for this thesis by the Walloon *Direction de l'Analyse Economique Agricole* (the "DAEA"), providing thus the most accurate P&L representation of Walloon livestock farms (nonetheless, it is important to note that the FADN bases its calculations for Wallonia on the DAEA database (DAEA, personal communication, October 30, 2024)):

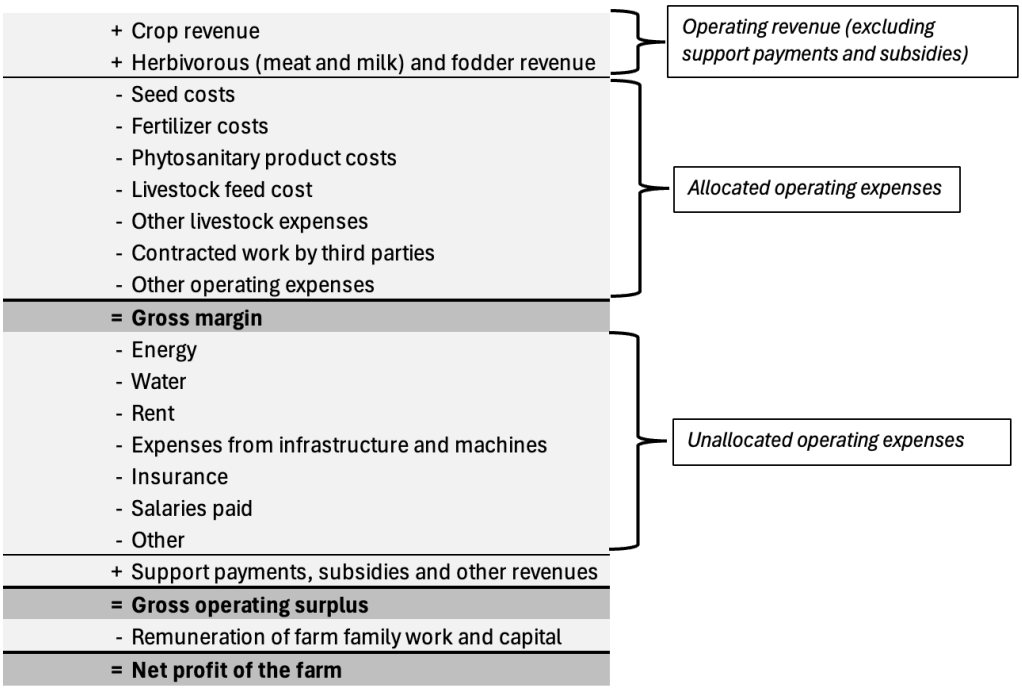


Figure 8: P&L structure of Walloon livestock farms (Self-creation based on the database provided by the DAEA, 2025)

3.3.2. Income

As shown in figure 8 the income of Walloon livestock farms consists of revenue from crop sales and revenue from livestock related sales. The Gross operating surplus shown in figure 8 is generally used to measure the performance of farms in the Walloon context (Interview of macro-actor 2, 2024).

Besides, an important aspect which has been highlighted in the literature of organic farms is the opportunity of receiving higher price premia from the sales of their products. Indeed, as briefly mentioned before, these price premia are key for the organic farms to be less dependent on direct support payments and to complement their incomes (Läpple & Rensburg, 2011) while also being critical for the development of organic production as a whole (Fairweather, 1999).

Organic farms are suggested to have the potential to be significantly more profitable (Crowder & Reganold, 2015; Koppenberg, 2023; Kerselaers et al., 2007) due to higher markups than conventional farms (Koppenberg, 2023), with breakeven premia potentially being far lower than premia received (Crowder & Reganold, 2015) while in addition being generally more profitable in the long run (Acs et al., 2007; Grovermann et al., 2021). Although, there is evidence that the price premia seem to be negatively exposed to factors such as the presence of large food retailers and multinational retail chains (Koppenberg, 2023), it is thus within reason to assume that competition using economies of scale (such as large food retailers) may indirectly pressure organic producers to lower their prices.

However, the core issues related to income of organic farms are twofold. The first issue of organic farming is their lower yield and feed use efficiency compared to conventional farms (Crowder & Reganold, 2015; Gaudaré et al., 2021; Reganold & Wachter, 2016). The second issue is the conversion period. Indeed, to have access to the high price premia, the organic farm has to first "survive" the two-year conversion period, where the farmer is constraint by the lower yield but cannot market the products as organic (Regulation (EU) No 848, 2018) and thus cannot generate any price premia (Acs et al., 2007).

In addition, the only relevant paper analysing organic Belgian livestock farms confirms that the conversion issue is also existent in Belgium (Kerselaers et al., 2007). Kerselaers et al. (2007) suggest that the transition period and its associated risks are key reasons for low conversion rates and support payments should thus focus on alleviating some economic pressure during that period.

Moreover, Acs et al. (2007) have suggested that the learning curve and the lack of experience regarding organic practices of the farmer during the conversion further influences the lower yield and income. Nevertheless, once the conversion period is over, farmers generally experience an increase in income (Kremmydas et al., 2023).

Support payments and subsidies

As already mentioned in segment "3.1.2. Risk identification", both conventional and organic farmers see institutional risk i.e. risks linked to support payments as one of their primary risks (Flaten et al., 2005).

Which is reasonable as support payments seem to be, on average, essential to achieve a level of profitability comparable to conventional farms (Offermann & Nieberg, 2000) and organic direct payments specifically play a key role in the financial viability of organic farms in Europe (Offermann & Nieberg, 2000; Stolze & Lampkin, 2009). Nevertheless, Stolze & Lampkin (2009) suggest that other support payments (i.e. other than organically linked) as well as market returns add more the total income of farms.

Furthermore, it has already been addressed in previous segments that the organic transition period is of critical importance. Indeed, existing literature emphasises that policies should aim to reduce financial strain during this phase, as the risks involved are a critical reason for low conversion rates (Kerselaers et al., 2007; Kuminoff & Wossink, 2010).

Besides, various policy tools, such as subsidies, pesticide taxation, and mechanisms to stabilize output prices and yields can encourage farmers to transition, particularly those who are more risk-averse and require greater financial incentives to overcome economic and non-economic hinderances (Acs et al., 2009). Although, financial aid can accelerate the conversion process (Pietola, 2001; Lohr & Salomonsson, 2000), it may not necessarily result in widespread adoption (Lohr & Salomonsson, 2000).

Additionally, research suggests a strong correlation between high financial support and well-performing farms (Giannakis & Bruggeman, 2015), whereas in some cases, existing policies may unintentionally make organic farming more appealing to lower-performing farms (Pietola, 2001). Giannakis & Bruggerman (2015) also suggest that financial support for the generational transmission of farms may results in higher farm performance.

Furthermore, investment aid mechanisms have been found to lead to increased land, increased labour resources and an increase in fixed assets, which results in a larger farm size and higher practical efficiency of farms (Czubak et al., 2021).

3.3.3. Cost

Organic livestock farms face higher feed costs (when sourced externally) compared to conventional farms (Offermann & Nieberg, 2000). In addition, organic farming does incorporate externalities (such as environmental protection, animal welfare and human health) into its cost structure, leading to higher production expenses (Crowder & Reganold, 2015; Hanson et al., 2004; Pretty et al., 2001).

Moreover, the expenses related to conversion, coupled with uncertainty about future profitability, contribute to the low rate of organic adoption among farmers (Kerselaers et al., 2007; Kuminoff & Wossink, 2010). Organic livestock production also requires more land to match conventional production (Gaudaré et al., 2021), but high land costs (Fairweather, 1999) and lower output per hectare (Gaudaré et al., 2021; Offermann & Nieberg, 2000) may create additional challenges. As a result, high land prices may oblige farmers to adopt extensive conventional practices instead of transitioning to organic methods (Fairweather, 1999).

3.4. Outputs and Inputs

One of the primary challenges of organic livestock farms linked to outputs and inputs is its lower yield and feed-use efficiency compared to conventional farming practices (Crowder & Reganold, 2015; Gaudaré et al., 2021; Reganold & Wachter, 2016; Shennan et al., 2017). Whereas the output per livestock unit is similar between conventional and organic farms, they starkly differ when measured per hectare due to lower yields of feed crops and livestock density requirements (Offermann & Nieberg, 2000). Indeed, organic livestock farms are suggested to have lower land-use efficiency (Mondelaers et al., 2009; Gaudaré et al., 2021; Offermann & Nieberg, 2000). But, while conventional farming remains more productive in terms of overall food supply, it is at the expense of environmental protection (Crowder & Reganold, 2015).

In addition, farm output variability is also largely influenced by production risks (addressed in "3.1.2. Risk identification") and as farm size and labour input increase, higher output fluctuations (i.e. risk) can be observed for both conventional and organic farms (Tiedemann & Latacz-Lohmann, 2013).

4. Non-monetary considerations

While financial incentives significantly influence whether farmer chose between conventional and organic farming (Pietola, 2001), farmers may additionally be constrained by the presence of non-monetary factors (e.g. education, experience, personal traits, access to markets) (Kremmydas et al., 2023). Moreover, research indicate that some farmers may question their decision to remain organic due to various circumstances, not limited to the economic aspects (Sahm et al., 2013). The FADN data base does not incorporate extra-monetary factors, resulting in a vast number of studies specifically focusing on the raw economic data having oversights stemming from non-monetary factors (Kremmydas et al., 2023).

Furthermore, the literature suggests that conventional farmers falsely view organic farmers as not being geared towards productivity (Home et al., 2019) and while some farmers recognize that organic methods can generate price premia, others discredit its financial viability (Fairweather, 1999). Moreover, since there is social pressure on farmers to maintain high productivity, organic methods are seen as a hinderance (Home et al., 2019). As a result, and due to a lack of social peer networks as well as communication among farmers, a sense of division between conventional and organic farmers may develop (Home et al., 2019). It is indeed critical to consider the importance of local support networks, easily accessible information sources as well as the existence of local agricultural authorities as they seem to enhance conversion rates (Kallas et al., 2009).

To add to this, the literature indicates that organic conversions should not just focus on simple organic regulatory compliance but instead should be seen as production strategy that enables additional opportunities (Kerselaers et al., 2007). The farmers' capacity to adapt their agricultural practices to the specific organic requirements significantly influences the economic viability (Kerselaers et al., 2007).

However, while various other factors influence the reluctance to convert e.g. the age of the farmer (the older the less likely) (Kallas et al., 2009) and, specifically for Belgium, the attachment to livestock breeds (such as the Belgian blue which requires caesarean births which poses challenges under organic constraints) (Kerselaers et al., 2007), some find the fulfilment of organically producing (Hanson et al., 2004) and preserving the environment (Kallas et al., 2009; Tzouramani et al., 2014) in itself to be enough of a motivation. In addition, farmers who are knowledgeable, experienced, educated on organic methods as well as their attitude towards organic farming are more likely to support organic production (Genius et al., 2006; Sapbamrer & Thammachai, 2021; Serebrennikov et al., 2020; Wheeler, 2008). Nevertheless, peers are also suggested to influence farmers' perspectives on organic systems, thus not having organic farmers in a peer network (or, reasonably assumed, in local communities) may not be ideal for adoption rates (Canavari et al., 2022).

Lastly, the presence of organic supportive policies, reflecting thus the government's and societal preferences, are suggested to encourage conventional farmers to adopt more sustainable responsible practices (Lohr & Salomonsson, 2000).

5. Gap in the literature

While the literature incorporates both qualitative and quantitative studies, it is heavily skewed towards the quantitative side and in need of qualitative insights to complement the raw data driven studies with non-monetary factors (Kremmydas et al., 2023). Additionally, relevant and recent literature is very limited, with even fewer sources (Kerselaers et al., 2007) for Belgium and none for Wallonia.

Furthermore, whereas the CAP Strategic Plan of Wallonia (2023) studies the Walloon landscape of agriculture, it fails to see the interplay and synergies between potential key factors. Indeed, it addresses issues using blanked coverage support payments (justifying their use by merely “filling” the numerical differences and losses) based on quantitative date only, without seeing the interplay of numerous parameters that contribute to the difficulties navigated by the farmers. While the consequences of the challenges are indeed reflected in the numbers, the causes and interactions remain, for the most part, invisible in their analysis.

This present thus the opportunity to conduct a qualitative study (complemented by a quantitative part) which will enable a view through a fresh lens on the commercial and financial barriers of Walloon organic livestock farmers in order to provide an overview of potentially new leverage points on the issues for the involved stakeholders.

The following chapter will describe the methodology used in detail.

Methodology

After the theoretical aspects of the literature review, this chapter aims to outline the research design, data collection methods and analysis procedures used in this thesis. In addition, it also provides justification for the choses methodologies and explains how they align with the research objectives.

1. Research design and justification

This study employs a mixed-method research design by integrating qualitative and quantitative approaches. The qualitative part will be conducted using semi-structured interviews (of agricultural macro-actors and Walloon livestock farmers), while the quantitative part will be realized by analysing a database provided by the DAEA.

Furthermore, an abductive approach will be used i.e. using both the inductive and deductive reasoning. More specifically, the approach will be conducted as follows; the theory as well as the interviews of macro actors and the quantitative analysis of the database will be used to shape the problematisation into hypothesises which are then investigated through qualitative data collection (interviews of farmers) and color-coded analysis.

In other words, the qualitative analysis of macro-actors and the analysis of the database, as mentioned above, will be used to complement the theory. As a result, it will increase the relevance of the hypothesises and theory pieces for the Walloon livestock context.

The qualitative analysis regarding the farmers is then used to investigate the hypothesises and answer the research question. A color-coded thematic analysis will be used to analyse the interviews. This approach offers great flexibility by adapting the interview guide to suit the needs of the thesis and facilitates an in-depth analysis for small sample sizes. However, it is important to note that by using this approach, the results cannot be applied as a generalisation of the situation.

2. Population and sampling

2.1. Primary data

The primary data is collected through in-depth semi-structured interviews with fifteen (n=15) key participants to gain in-depth insights on the subject. The participants are comprised of three (n=3) agricultural macro-actors to complement the establishment of hypothesises and twelve (n=12) Walloon livestock farmers. The interviews are conducted through Microsoft Teams, Whatsapp or standard phone calls. It is important to note that the interviews were conducted in French to eliminate the language barrier, as a result the interview guide used was also in French.

Please find in appendix 6 the interview guides used for the semi-structured interviews.

The contact details of the farmers were obtained through the *Banque Carrefour des Entreprises* (NACE-BEL code 014, then manual filtering), general internet research or personal contacts.

Please find in appendix 7 a snapshot of a BCE contact research example

An important factor for the interviews is attaining saturation i.e. obtaining no new elements with additional interviews. The saturation is reached at around twelve (n=12) participants (Guest et al., 2006), which is thus achieved with the number of farm participants of the study.

2.2. Secondary data

The secondary data has been obtained through the DAEA, which provided a database containing accounting data (balance sheet and P&L) and econometric data of 66 organic and 519 conventional Walloon livestock farmers over the span of three years (2021, 2022, 2023). The data will be analysed with the software Microsoft Excel and R.

Please find in appendix 8 a snapshot of the DAEA database

3. Ethical considerations

To ensure the adherence to ethical research principals and General Data Protection Regulations (GDPR), consent was obtained from all participants while also ensuring anonymity and confidentiality. To add to this, the database will be deleted permanently after the completion of the study.

Development of the hypothesises

Following the literature review and the justification of the methodology, hypothesises will now be shaped using the theory while incorporating a quantitative analysis of the database and qualitative insights of the macro actors. This will help tailor the hypothesises to the Walloon landscape.

1. Quantitative insights from the database

1.1. Farm size spread

To begin with, it is useful to compare the size spread of farms of our database. A convenient indicator for this is the total amount of the balance sheet. This analysis will be done using boxplots. Please note that a binary value has been assigned to both farm types; 0 for conventional and 1 for organic.

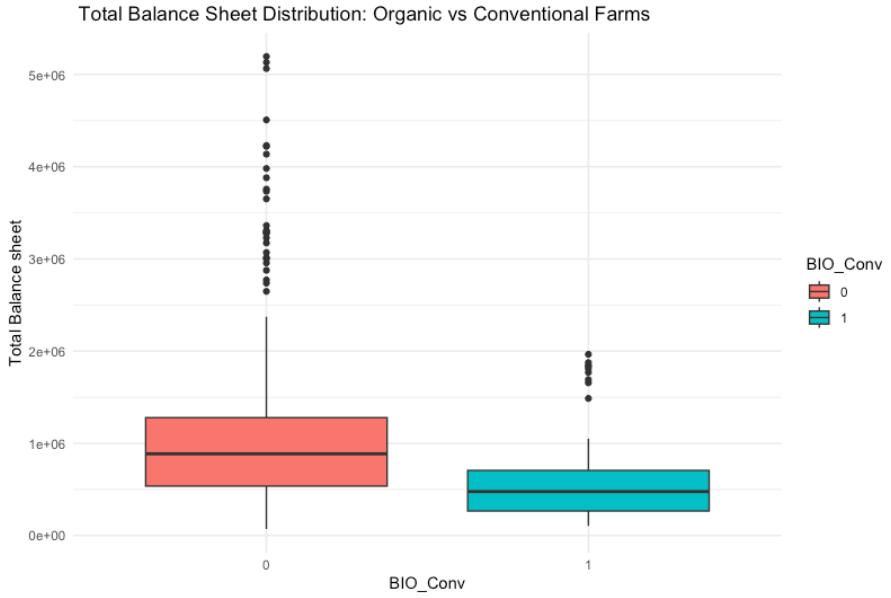


Figure 9: Farm size distribution (self-production using the DAEA database and R)

Figure 9 clearly indicates that conventional farmers in Wallonia are larger than organic farms. While the distribution of conventional farms is more spread out with a decent number of outliers, the size of organic farms is very narrowly distributed which indicates that organic farms are very similarly sized. This homogeneity in farm sizes is consistent with what is expected by the institutional theory (addressed in the literature review) which indicates that due to institutional pressures and the resulting isomorphisms, entities become more and more similar which in turn, may decreases innovation (DiMaggio & Powell, 1983) (cfr. to segment “2. Institutional theory and legal framework”). If all farms are similarly sized with similar operations, market saturation of organic products may be a consequence.

Moreover, as there are a lot of outliers for conventional farms, one could argue that the following statistics should be done using the median instead of the mean. However, the median may cause oversimplification of the data and may not capture critically important economic insights. In

contrast, the mean reflects the economic reality better. As a result, the following segment is done using the mean.

Hereafter are the descriptive statistics of balance sheet weightings and P&L weightings (vertical analysis) as well as absolute mean values.

1.2. Vertical Analysis of the balance sheet

The vertical analysis of the assets and liabilities is illustrated as a percentage of the total of the balance sheet. Absolute values were also included to help understand nuances. Please note that binary values have been assigned to the farm types; 0 for conventional and 1 for organic farmers.

Vertical Analysis of the Balance Sheet (% of Total Assets) : Organic vs Conventional Farmers

BIO_Conv	Avg_TA_EUR	Avg_IncorpCost	Avg_Land	Avg_Building	Avg_Machine	Avg_Herd	Avg_CurrentAssets
0	1,055,104.2	0.2734878	45.67536	13.53896	11.52229	27.12617	1.863736
1	623,551.6	0.4268257	52.02072	14.18962	11.70170	20.55399	1.107142

Value Means of the Balance Sheet (Assets) : Organic vs Conventional Farmers

BIO_Conv	Avg_TotalAssets	Avg_IncorpCost	Avg_Land	Avg_Building	Avg_Machine	Avg_Herd	Avg_CurrentAssets
0	1,055,104.2	2,885.58	481,922.6	142,850.10	121,572.16	286,209.4	19,664.35
1	623,551.6	2,661.48	324,376.1	88,479.59	72,966.16	128,164.7	6,903.60

Figure 10: Vertical analysis of the Balance Sheet (Assets) *(self-production using the DAEA database and R)*

As shown in figure 9 and 10, organic farmers have significantly fewer total assets (“TA”), but they allocate a greater proportion to land. Building and machine allocation are interestingly very similar, whereas conventional farmers allocate more to their livestock herds and have slightly more current assets. Considering that organic farmers have more stringent livestock density rules; a higher land and lesser herd allocation is coherent with the theory.

In absolute values, conventional farmers own more land (even if they allocate a lesser percentage to it), more machinery and have a significantly higher herd value. This indicates a significantly more intensive and a larger farming model. Which is consistent with the theory.

Vertical Analysis of the Balance Sheet (% of Total Liabilities) : Organic vs Conventional Farmers

BIO_Conv	Avg_TL_EUR	Avg_Equity	Avg_Subsidies	Avg_DebtLT	Avg_DebtST
0	1,055,104.2	78.44387	0.1221833	21.35923	0.0747151
1	623,551.6	82.49529	0.2077256	17.29698	0.0000000

Value Means of the Balance Sheet (Liabilities) : Organic vs Conventional Farmers

BIO_Conv	Avg_TotatLiab	Avg_Equity	Avg_Subsidies	Avg_DebtLT	Avg_DebtST
0	1,055,104.2	827,664.5	1,289.16	225,362.2	788.32
1	623,551.6	514,400.8	1,295.28	107,855.6	0.00

Figure 11: Vertical analysis of the Balance Sheet (Liabilities) *(self-production using the DAEA database and R)*

Figure 11 shows organic farmers allocate more of their total balance sheet to equity and less to debt when compared to conventional farmers which may indicate that do not want to take on additional leverage as organic farming is inherently riskier. Besides, the subsidies perceived as well as the degree of short-term debt by both farm types are negligeable.

In absolute values, the results indicate significantly lower scale of operation for organic farmers as invested capital in equity and leverage taken on from long-term debt are significantly higher for conventional farms, indicating an increased willingness to invest in their business and thereby putting more capital at risk while also taking on additional risk through leverage.

1.3. Vertical Analysis of the P&L

As mentioned in segment "3.3.2. Income" of the literature review, the gross operating surplus (the "GOS") is generally used to compare farm performance. For a reminder of the P&L structure, please refer to "3.3.1. Defining Farm Profit". The vertical analysis of the P&L is addressed by comparing all entries of the P&L to the GOS.

Vertical Analysis P&L : Revenue (% of GOS) : Organic vs Conventional Farmers

BIO_Conv	Avg_Crops	Avg_Livestock
0	106.5073	216.4458
1	57.1361	133.1930

Figure 12: Vertical analysis of the P&L (revenue) *(Self-production using the DAEA Database)*

To begin with, the revenue proportions differ strongly for both farm types. Conventional farmers generate significantly higher revenue through both crop and livestock related sales. As this ratio compares the revenue to the GOS, it suggests that organic farmers are heavily relying on aids to generate gross operating surplus and thus supplement their income.

Vertical Analysis P&L : Aids and Other Revenue (% of GOS) : Organic vs Conventional Farmers

BIO_Conv	Avg_DirectPay	Avg_UnCoup	Avg_Coup	Avg_MAE	Avg_Organic	Avg_OtherAids	Avg_OtherRev
0	32.62022	15.78180	10.572618	2.107386	0.05963081	4.679379	2.799344
1	63.55827	19.38762	8.132931	9.550486	17.83896968	7.427279	4.757910

Figure 13: Vertical analysis of the P&L (aids) *(self-production using the DAEA database and R)*

By looking at aids compared to the GOS, it indeed confirms the reliance on aids. As show in figure 13 the GOS of organic farmers is significantly more comprised of aids than that of conventional farmers.

Interestingly, while uncoupled ("Uncoup", not based on the type of activity i.e. aids other than direct payments, livestock and organic related) as well as coupled aids ("Coup", based on activity i.e. livestock related) do not diverge significantly, the direct payment aids perceived by organic farmers are more than 60% of their GOS which is almost double than their conventional counterparts. As expected, organic aids are almost non-existent for conventional farmers whereas they represent 17% of the GOS for organic farmers.

Vertical Analysis P&L : Allocated Operating Expenses (% of GOS) : Organic vs Conventional Farmers

BIO_Conv	Avg_Seeds	Avg_Fertilizer	Avg_Phytho	Avg_Feed	Avg_HerdExp	Avg_Work3rdparties	Avg_OtherExp
0	3.968840	11.669948	3.02750452	74.58584	17.815072	13.88907	0.1775795
1	3.295501	4.575083	0.00200823	29.51491	9.353354	12.02181	0.9650707

Figure 14: Vertical analysis of the P&L (allocated operating expenses) *(self-production using the DAEA database and R)*

As for the allocated operating expenses, figure 14 illustrates that conventional farmers utilize significantly more fertilizer and phytosanitary substances. This is indeed consistent with the theory as organic farms are heavily constraint on fertilizer (no chemicals) and especially phytosanitary usage.

Surprisingly, the feed cost is much higher for conventional farmers, which may contradict some theory. However, on one hand, this may be due to a more intensive farming style for conventional farms and on the other hand, this suggests that organic farmers, at least in Wallonia, favour feed/fodder autonomy of their farms and may only supplement with external sources when needed.

Moreover, herd expenses being fairly higher for conventional farmers may be due to a freer use of supplements, veterinary interventions and chemical treatments for their livestock.

Vertical Analysis P&L : Unallocated Operating Expenses (% of GOS) : Organic vs Conventional Farmers

BIO_Conv	Avg_ENRGY	Avg_Water	Avg_Rent	Avg_MaintBuild	Avg_MaintMach	Avg_Insurance	Avg_Salary	Avg_OtherExp
0	11.399733	0.9171764	13.36868	1.349151	10.89100	4.518320	2.274900	3.796149
1	9.997797	1.1644911	13.58453	2.165737	10.99965	5.042623	2.399868	5.527040

Figure 15: Vertical analysis of the P&L (Unallocated operating expenses) *(self-production using the DAEA database and R)*

Finally, while the unallocated expenses are very similar among both farm types, energy usage is slightly higher for conventional farms which may be due to a more intensive farming style.

1.4. Profitability comparison

Profitability indicators : Organic vs Conventional Farmers

BIO_Conv	Avg_GrossMarginPerBovine	Avg_GOS	Avg_GrossMargin
0	1,216.15	135,084.84	152,774.92
1	1,006.35	89,218.16	73,663.47

Figure 16: Profitability indicators (self-production using the DAEA database and R)

The literature suggests that organic farmers are able to generate price premia. However, as shown in figure 16, the gross margin per bovine is around 20% lower for organic farmers. Moreover, conventional farmers have overall double the gross margin of organic farmers (aids are not included in the gross margin, cfr. to P&L structure in figure 8). While the difference in GOS is still significantly in favour of conventional farms, the situation slightly improves due to the incorporation of the aids. The results suggest that the price premium generated by Walloon farmers (if any) may not be sufficient.

2. Qualitative insights from the macro-actors

To further tailor our hypothesises to the Walloon landscape, interviews of agricultural macro-actors have been conducted. The interviews were open discussions about several topics related to the subject (policies, subsidies, risk, economic and non-monetary factors). The advantages of interviewing through open discussions are the flexibility to explore diverse perspectives as well as getting in-depth insights on the topic and having the possibility to do on-the-fly adaption of questions based on the interviewees' expertise and experience.

The interviewed macro-actors were the following: the first, was an experienced consultant specialized in agricultural financial analysis, accounting and tax, who is also a professor in agronomy in the Walloon region (the "macro-actor 1"). The second, was a bank employee with a whole career of experience solely in the agricultural banking sector, specialized in livestock (the "macro-actors 2"). The last macro actor was an employee of a vast organisation in Wallonia whose aim is to provide free information to farmers interested in converting to organic. They also propose services of financial analysis, conversion viability and farm setup efficiency planning (the "macro-actor 3").

To illustrate the results succinctly, a table has been created for each interviewee with key elements of those interviews, structured per topic.

Topic	Macro-actor 1's response
Market access, consumer demand	*"Market access is difficult, while organic production aligns with macroeconomic trends and has been growing for 30 years, consumer demand isn't keeping pace, there is not enough demand for the supply. Moreover, consumers always go for the lowest price."*
Organic practices and transition	*"In terms of actual practices, transitioning livestock farms is easier than crop focused farms."*
Financing access	*"Not a huge factor when looking at the constraints of transitioning. However, liquidity during the transition period is an issue. The government could grant bank guarantees to help the financing for transitioning farmers."*
Production volatility and output	*"Of course, organic farms are more volatile. But they tend to implement some resilience strategies like choosing more resilient livestock breeds."*
Risk management and identification	*"I think organic farms can be more resilient against macro-economic crises. Conventional farms have more external expenses and as a result are more exposed to macro shocks. (…) Fodder autonomy is key for the resilience organic farms.* *For example, when the canal in Egypt got blocked, conventional farmers had issues with the volatile prices, whereas organic farms did not. (…) They identify mostly the economic risks of the transition. (…) As for actual organic practices, they do "trial and error", they usually do not go further than that."*

Motivation of conversion	*"It depends on one farmer to another. However, what motivates the majority are the economic factors, higher margins through high sale prices and lower costs. (…) Stability and autonomy are also factors. Only a small minority convert because they are convinced of organic practices."*
Investments	*"For livestock farms not much changes, the most important one are the change of livestock breeds which is of course an investment. (…) Oftentimes, the herd is adapted to the available facilities and not the contrary. (…) While conventional always want to push the intensity of farming, organic farms want to optimise what they have."*
Subsidies and aids	*"Without aids it is certain most wouldn't do the transition. But with the new CAP, the losses are only partly compensated as the price premium they may generate is taken into account. Between similar sized farms, organic farms may generate more revenue"*

Figure 17: Interview of macro-actor 1

While the first macro-actor put forward that, in terms of practices, livestock farm transitions are easier than conventional farms and that financing is not an hinderance, he does believe that the market of organic products is saturated due to low demand and high supply, and that the primary reasons for transitions are economic. In addition, he expresses that the transition period comes with liquidity issues and that without aids most wouldn't transition. Nevertheless, he points out that organic farms are more volatile but that they implement risk management strategies like acquiring resilient breeds and being in fodder autonomy which in the end result in a more resilient farm by being less exposed to macro-economic shocks.

Topic	Macro-actor 2's response
Financing	*"Generally, we like to work with organic farmers as this aligns with our ESG goals. We do not increase the cost of debt nor ask for additional requirements, but of course we are analysing the risks as with every client. (…) The conversion period is an area of increased risk for the bank, generally the revenue is lower, and the working capital required is high. The farms need to be able to manage their cashflow and our role is to guide the farmers and to point out the liquidity risk."*
Financial constraints and risks	*"Again, the conversion period often results in cashflow issues. The production volatility is also higher for organic farms, especially related to climate."*
Investments & expenses	*"Workforce is expensive for both types but when you change farming practices, specific machineries and equipment are costly. Land is also very expensive in Belgium when compared to other countries, and organic farms have a higher need of land. For the same production, organic farms need more land when compared to conventional farms."*

Commercial constraints	*"For the producers, organic and local distribution channels are developing but are still scarce. Unfortunately, due to the decline following the Covid some of those stores had to close. (…) Also, the production volatility of organic farms may cause irregularities in the supply of products which isn't ideal. (…) Some distribution channels experience market saturation for organic products, they need to limit what they buy from organic producers."*
Consumer demand	*"There is not enough demand and too much supply. The price of the organic products is an hinderance for the consumers. Consumers immediately associate organic products with a much higher price, even if the difference is only a few cents. It really depends on the type of products; organic poultry is way more expensive whereas organic beef and eggs are not that much more costly."*
Deconversion	*"Even with the higher prices they can demand, due to the constraints, organic farmers often question whether it is really worth keeping their organic status."*

Figure 18: Interview of macro-actor 2

Macro-actor 2 indicates that financing the transition is not a hinderance but he clearly highlights the cashflow issues farmers face during the transition period. He also puts forward the costly investments in machinery and equipment and emphasises the high land cost in Belgium, which particularly impacts organic farms as they have a higher need for land. Moreover, he also thinks that the markets are saturated and underlines the lack of demand due to the high prices. Additionally, he draws attention to the lack of organic and local distribution channels, which are also likely to be saturated with organic products. He finally expresses that deconversions are happening due to the constraints.

Topic	Macro-actor 3's response
Consumer demand	*"There has been explosive growth in organic farming for the last years. Many farmers were interested. As of today, for the livestock sector, we notice that there is not enough organic demand and too much supply. Many farms need to sell their carcasses as conventional due to the low demand, which is a big hinderance. (…) Consumers also perceive organic products as way more expensive."*
Organic practices and transition	*"It is not complicated for livestock farmers to transition, especially if they already have a solid grassland system in place, there is not much adaptation time. (…) Organic farms cannot easily undo errors, they need to anticipate and really need to create a system where sanitary problems are less likely to occur."*
Market access	*"Market demand and access is a big hinderance. (…) A lot of farmers have seen adverse effects because of big retail distributors. Also, for example Delhaize is now Dutch and is, as a result, mostly supporting Dutch farmers by distributing their products."*

Information access	*"If a farmer is interested, he can easily find information."*
Financing access	*"I do not know enough of it to give an answer."*
Production volatility	*"The organic farmer knows that organic feed is expensive, his objective is to be autonomous and therefore less dependent on the market. However, as for the sale price of carcasses they are very dependent on the market and exposed to price fluctuations. For livestock farms, fodder autonomy is critical, but they often also have crop plantations on the side. (…) The volatility often comes from the climate, for example, this year the fodder quality and harvests are not great so in that case they need to supply fodder externally. But on the flip side, higher temperatures from climate change are not an issue for fodder production. I do have the impression that organic farms are indeed less exposed to market volatility."*
Output and input	*"An organic farm functions more in short circuit than conventional farms. As for inputs, of course less than conventional, especially with fodder autonomy. The output is also obviously less."*
Costs	*"Externally sourced feed is of course more expensive. Although, veterinary expenses are less as they are heavily limited on caesarean births."*
Revenue	*"It is complicated, at the moment the margin is very barely sufficient. The conversion is also a big issue for the revenue, as products cannot be sold as organic. However, the margin can improve in short circuits. (…) The low revenue due to low market demand induces a lot of decertification of farms."*
Subsidies	*"In my opinion, the subsidies are sufficient, organic production is heavily supported. Interestingly, there is a debate at the moment whether the aids are too high. The producers are there but the demand is the problem. Also, an interesting fact, the positive externalities of organic farms on water quality are such that it costs less in organic subsidies to improve water quality than it costs to treat the water."*
Investments	*"Yes, there are costs to anticipate when converting like the herd, improvement of facilities, more open accesses; basically, to respect the organic practices."*
Non-monetary	*"While there is some stagnation in conversion and decertification at the moment, most farmers I have seen do it because they are proud of producing organically. What I see a lot today are farmers that are opportunistic, that want to convert without having a system that can be easily adapted to organic and without having an established short circuit in place. To add to this, a lot of farmers will soon retire but there aren't sufficient successors."*

Figure 19: Interview of macro-actor 3

Macro-actor 3 points out that consumers perceive organic as too expensive and that demand for organic livestock products is not sufficient for the current supply, and as a result, he mentions that many farmers need to sell their surplus as conventional. Nevertheless, macro-actor 3 draws attention to the practical ease of transitioning for livestock farmers already having a solid grassland system in place. Yet, he underlines that market access is a significant hinderance and that big retail chains have adverse effects on the farmers as organic farms are more suited for short circuit trades. He also points out that organic feed costs are more expensive, and that organic farms heavily rely on fodder autonomy but still face climate related volatility. However, he is of the opinion that subsidies are sufficient as the supply is present, but the demand is lacking. Finally, he emphasises that margins are barely sufficient causing decertification and that the transition period is problematic, while additionally, many farmers are too opportunistic and convert without proper systems in place.

3. Development of the hypothesises

After laying out the theory and the analysis of insights from the database as well as macro-actors, the next segment is dedicated to the formulation of hypothesises which are used as a starting base to conduct the interviews of the farmers. Four key pillars have crystallized from the groundworks of our previous analysis which will help narrow down financial and commercial constraints of Walloon farmers transitioning to/under an organic label. For a clearer overview, a very brief recall of key theoretical aspects has been done in the following sub segments.

3.1. Financial considerations

Organic farming is suggested in the literature to have a high economic potential; elements such as a higher gross margin and higher revenue seem to be at the forefront of motivation for organic transitions. However, while the support payments are significant, these economic upsides may not be achievable in current times. As the analysis of the database suggests, the margin of organic farms seems to be significantly lower than their conventional counterparts and thus organic farms may be under financial distress.

Hypothesis 1: *Organic farming systems in Wallonia are not economically attractive.*

3.2. The transition period

The transition period has been consistently found to be an area of increased risk and a time of severe cashflow issues due to farmers not being able to market their products as organic for 2 years, while also being under the constraints with the reduced output and accruing expenses of the transition. The literature and the interviews of macro-actors highlighted the uncertainty and risks of the transition period, which seem to be a significant barrier to entry, especially if the planning is overlooked.

Hypothesis 2: *The constraints of the transition period are a significant economic hinderance for Walloon organic farms.*

3.3. Organic product demand

Various sources seem to indicate that the market for organic products has reached saturation. Consumers seem to be very reluctant to pay the price premium while there is a surplus of supply. In addition, common knowledge of current uncertain geopolitical times may lead to consumers preferring affordability over organic labelling. Without adequate demand and thus consumers willing to absorb the price premium, the financial viability of organic conversions seems unappealing.

Hypothesis 3*: The lack of consumer demand is a significant economic hinderance for organic farms Wallonia.*

3.4. Distribution channels

The insights from the macro-actors and the literature have highlighted that short circuit distribution channels may be critical for the financial viability as they promote local contact with the right consumers and facilitate the generation of price premia. However, adequate and sufficiently developed distribution channels seem often scarce or non-existent while, additionally, the presence of big retail stores seem to pressure farmers to lower prices. Also, due to the low demand, retail food chains often distribute only a limited quantity of organic products and choose to only support their own countries or require a constant supply of goods (which may be difficult for organic farms). Additionally, short circuit channels are likely to be saturated with organic products.

***Hypothesis 4**: Organic distribution channels are not adequate and have a significant influence on the viability of organic farms in Wallonia.*

Results

To address the research question being about the commercial and financial barriers associated with livestock farms transitioning to/under an organic label, the following section presents the findings from the semi-structures interviews which were conducted with twelve (n=12) Walloon livestock farmers, of which one did a reversion back to conventional, one recently stopped his conventional activity but thought about transitioning to organic, and ten that were organic.

The interview data has been analysed using a thematic analysis facilitated by color-coding the transcripts. The themes and sub-themes used in the following results have emerged through the answers of the participants. Additionally, quotes sourced from the interviews were added sparingly to support the analysis.

0. Motivations for switching or starting organic farming

As an introductory segment, the interviews revealed a variety of reasons farmers adopted organic farming such as environmental concerns as well as ideological beliefs but also economic incentives.

Some farmers initially transitioned due to economic reasons or cited financial incentives but now choose to stay organic for environmental sustainability. However, most others were motivated by purely ecological values, with some even choosing organic farming from the very beginning of their activity: *"I started directly with organic farming, out of conviction"* (Farmer 4), *"(…) I have never farmed as conventional"* (Farmer 7). In one case a farmer even practiced organic methods without ever being registered as an organic farmer: *"We have always been organic actually. (…) We weren't certified even though we produced organically, but it was silly to not get the aids, so we decided to get the certification"* (Farmer 10).

Surprisingly, some have mentioned external influence that motivated their transition, such as meeting professionals who demonstrated the organic system's potential: *"I met a French agronomist who showed me how organic farming results could be as much, if not better, than conventional."* (Farmer 3).

However, some farmers hesitated due to financial risks noting economic difficulties as well as revenue that is not comparable to conventional farms: *"The transition was more about ecology (…) economically it was unfavourable."* (Farmer 2).

1. Financial considerations

1.1. Economic viability

Economic viability seems to be a major concern for farmers, although there are mixed experiences in profitability and financial stability.

Some farmers found organic farming to be economically stable and satisfying, mentioning the importance of the subsidies and the reduced costs on inputs such as feed (notably due to fodder autonomy), fertilizers and especially veterinary costs. To add to this, participants also mentioned the importance of controlling expenses and increasing the efficiency of farms: *"If you cannot further increase your revenue, you need to rigorously work on your expenses. (…) Organic farms are able to drastically reduce their expenses."* (Farmer 5).

In stark contrast, others struggled with costs, particularly those who did not have enough livestock to fertilize larger areas of farmland, relying thus on organic fertilizers which seem to have exorbitant prices. Furthermore, overall inputs such as energy, organic livestock supplements (to increase yield), land prices as well as land regulations, decreasing fodder crops yields, animal diseases, animal cures and investment capacities were also mentioned to be areas of hardship. To add to this, one case of a farm being entirely financed by a large capital injection of family members still could not achieve a profit, nor could they pay themselves a salary: *"Without such external capital it is very difficult (…) As farm managers we still cannot pay ourselves a salary at the moment."* (Farmer 12).

Additionally, several participants expressed their frustration over organic and conventional prices converging which seems to be especially the case for dairy and Belgian blue meat. Several farmers noted that passing on the cost of increasing expenses to customer is difficult and some thought that subsidies are not sufficient.

Moreover, one farmer even did a reversion from organic to conventional: "*When your company isn't profitable anymore, the right decisions need to be taken. (…) Because of today's economic situation, it wasn't possible to stay organic anymore.*" (Farmer 9). The participant, among others, also noticed that local products are more in demand than their organic counterparts, which contributed to their decision of reversion. Nonetheless, the farmer did mention that small scale organic farms may still be profitable but that there is an incompatibility, which they experienced first-hand, between intensive farming and being organic, as the added costs are overpowering.

Nevertheless, increased profitability has been reported to be due increased farming experience, better soil quality, fodder quality and autonomy as well as livestock disease immunity. Besides, it was also noted that communicating the farm's values and explaining to the customers the practices in place can justify the increased price of organic products.

Besides, market volatility has been highlighted by some farmers: *"There are times when organic is much more profitable, but it changes a lot.*" (Farmer 8). However, some achieved a market volatility hedge by developing direct farm sales as well as building up their reputation and the client loyalty through their product quality: *"We transform our products ourselves, so we are less impacted."* (Farmer 2), *"I am not exposed to the market because I sell a lot directly from the farm."* (Farmer 8).

1.2. Transition period

Surprisingly, specifically during the transition period, most participants did not experience major financial strain: *"I do not recall having big financial or cashflow issues"* (Farmer 9). Moreover, participants mentioned as they still sold as conventional, and when combined with the additional conversion aids, they reported that they thus had sufficient cash inflows for survival. To add to this, the importance of adapting farming practices to the available land was emphasized.

However, some did experience financial challenges under organic constraints due increased costs of seeds, feed, controlling costs and fertilizers while being obliged to sell as conventional: *"During the two years, products need to be sold as conventional, a higher financial compensation is necessary to make up the difference."* (Farmer 10). To add to this, some participants even resorted to complementary income during the transition period by working externally in addition to managing the farm.

Furthermore, others noted financing investments in farm assets to be an area of difficulty, notably to compensate the lack of chemical products: *"For working the field, a big investment in a machine was necessary."* (Farmer 5). Additionally, some experienced significant challenges due to the scarcity and price of available land but also due to buying the farm and converting it: *"Financially it was overall ok (…) but we had cashflow issues financing the farm installation as we bought and converted a conventional farm for two years."* (Farmer 8).

1.3. Short circuit sales and profitability

The positive impact of short circuit sales on profitability was greatly emphasized. Selling directly to consumers, especially through farm shops, was consistently associated with higher profit margins. Many farmers underlined that by eliminating intermediaries, they could set their own prices and retain a larger share of the generated revenue: *"The profitability of the farm increased as I now own the entire production chain."* (Farmer 1). This business autonomy was seen as critical, especially when product quality and customer loyalty, resulting in repeated purchases, were maintained.

The control of pricing through the aforementioned direct sales was as much an economic benefit as it was an independence facilitator. The participants expressed satisfaction in being able to avoid imposed pricing structures and rigid negotiations with wholesalers or supermarkets where margins are significantly reduced. In some cases, the farmers' organic products were even reported to be priced more competitively than in traditional butcher shops.

While short circuit chains were broadly recognized to significantly improve the profitability, limitations were acknowledged by some. One farmer underlined that, at least for them, the financial advantages of direct sales have severely diminished over time. The rising costs impacting their activity while needing to stay price competitive, particularly when compared to the Belgian Blue conventional farms, were cited as pressure points that limited the ability to increase prices, in fear of losing consumers, even when the production costs grew.

Additionally, there still seems to be a trade-off between margin and volume. Whereas short circuit sales seem to be better for increasing profit margins on a smaller volume scale, they may not be scalable enough to support significant business growth. One producer reverted to conventional practices to focus on a more intensive production approach to increase revenue and repay accumulated debt, despite acknowledging the potential of higher profitability of short circuits. Overall,

the majority of interviewees agreed that short circuit chains enabled price control and intermediary reduction offered clear advantages in terms of profitability, even if scalability is limited.

2. Market dynamics, distribution channels and consumer perceptions

2.1. Distribution channels

The participants employed a variety of distribution channels and were often combining direct and indirect sales to balance visibility, customer relationships and of course volume. On one hand, several farmers emphasized the importance of direct sales through their own farm shops, while on the other hand, others supplemented with local organic markets, small stores, restaurants and farmer cooperative networks. For many, cooperatives and wholesalers remain key outlets for larger volumes of goods, while direct sales offer better margins and closer customer contact. As an informal distribution tool, phone calls to coordinate meat order after slaughter were mentioned. Despite the diversity of strategies there is a clear trend towards strengthening short circuit sales whether it be through their own stores, small shops or restaurants as participants mentioned that there is a growing number of local channels.

Besides, only in rare cases did participants, mostly those selling almost entirely in their own farm store, not experience difficulties regarding their distribution channels. Indeed, difficulties linked to distribution channels emerged in specific contexts. For instance, a very commonly cited problem was the requirement of consistent supply and product quality when dealing with wholesalers and restaurants, who expect regular deliveries in sufficient quantities. Similarly, wholesalers often require a minimum volume to justify the transport and logistics involved of buying the products, which farmers could sometimes not guarantee. An additional challenge exists due some wholesalers having strict delays to respect of when they order products and when they have to be ready, which can be difficult to manage for the organic producers.

Some interviewees noted the saturated market, particularly for products like milk, or niche products like goat meat, had limited distribution opportunities. Besides, competition from other local producers offering similar products also occasionally limited access to certain sale points, as the stores often do not want two of the same products.

Importantly, frustration was expressed with the industrial farm sector's resistance and sabotages against independent cooperatives of producers. Besides, the complexity of establishing cooperative structures in Belgium seems to be challenging. Indeed, one farmer pointed out his failed attempt to create such a structure due to a lack of commitment from potential partners, even though the needed subsidies were secured. Despite this, the importance of maintaining personal contacts and networks was emphasized as the agricultural community has been reported by some to be selfish and closed up.

Furthermore, concerning logistics, long delivery times and insufficient return on time investment, especially when attending small markets, were cited as barriers: *"Traveling one hour to deposit a few cheeses in a store is not worth it for us time wise."* (Farmer 12).

Regarding supermarkets and big retail chains, while some farmers saw them as potential competitors and aimed to "steal" their clientele by outperforming such entities in terms of quality,

many voiced a clear distrust towards the underlying motives of large retailers as these businesses were frequently described as prioritizing shareholder profits over fair remuneration of producers. Furthermore, several participants pointed out the danger of becoming too dependent on large retailers for distribution, especially when their own production was manageable and easily sold through direct sales channels.

Despite these concerns, many producers acknowledged the practical benefits of working with supermarkets, particularly for managing surplus production. However, a key contradiction was highlighted: while supermarkets may help reach a broader audience, they often blur the lines between industrial, imported organic products and high-quality locally produced goods. According to some interviewees, the emergence of supermarkets' organic product offerings had negative effects on the organic sector as it undermines the values associated with local organic farming.

Indeed, these businesses were viewed as a double-edged sword. While participants saw them as a potentially entry point for consumers unfamiliar with organic products, they were still criticized for damaging the reputation of organic products through inadequate product pricing, lack of transparency regarding the origin of products and insufficient visibility for organic and local producers.

To add to this, many participants believed that supermarkets have taken advantage of the growing popularity of organic products in the recent years. They pointed to the use of the products as simple marketing tools or as a bait, with the aim to attract a wider range of consumers rather than to support organic agriculture. For the participants doing business with these large retail chains, further frustration was expressed regarding the price negotiation difficulties or even negotiation impossibilities. Besides, accessing dominant retailers like Colruyt and Delhaize was described as particularly difficult for organic farmers as these chains have a continued preference for conventional products.

In essence, there was a shared belief that among participants: if supermarkets want to support the organic sector, they should focus more on promoting local, authentic organic and even local conventional products rather than opting for cheap and/or imported alternatives. Moreover, the importance of clear labelling, traceability as a way to restore consumer trust was emphasized to meaningfully support local agriculture within the retail sector.

2.2. Marketing

To begin with, it was emphasized by many that successfully transitioning organic farms required, not only, the organic know-how, but also, a robust marketing strategy. It was admitted that the most difficult challenge for some was the self-marketing which even led to initial financial losses. However, once the self-marketing channels were in place, it seemed to decrease some demand volatility exposure and significantly decrease the reliance on single customers: *"I prefer to sell to 1000 to 2000 customers than to have 1 big client (…) If I lose 100 clients it doesn't matter, however if I lose the big one, it is tragic."* (Farmer 1).

To add to this, the commercial visibility of organic farm products seems to be a significant challenge. Indeed, the interviews indicated a shift in market dynamics as the initial economic support for organic farms attracted numerous farms to make the transition, which exponentially increased competition. The economic condition that once favoured organic farms, has been reported numerous times to now have shifted to the rise of local products which are now favoured by consumer. As a result, organic products have been reported to struggle to maintain their market presence.

A frequent theme among participants was the confusion between organic and local products, which many saw as a barrier to informed consumer choices. Several farmers pointed out their concerns that consumers often assume local is automatically organic which fails to grasp the specific health and environmental benefits of certified organic practices. To add to this, many underlined that the consumers do not realize the impact on their health, the soils and water, emphasizing the need of increased awareness. These confusions are exacerbated by the proliferation of labels, where some are organic but whereas some are not, which is seen to leave consumers unsure about what they are actually purchasing.

Moreover, participants noted that the perception of organic products being inherently more expensive has been *"drilled into people's heads"* (Farmer 12), even though in many cases, direct sale organic products are very price competitive when compared to supermarkets. Besides, participants stressed the need to move beyond the price arguments and aim to instead connect with customers through education about quality, sustainability, and taste: *"if we can't convince them with their minds, we have to convince them with their mouth"* (Farmer 1). Many participants converged on the idea that the solution lies in better communication and campaigns of the health and environmental risks of pesticides and the benefits of organic based diets. It was emphasized, to communicate a sharp distinction between organic and conventional practices as these lines seem to be blurred at the moment.

While some even advocated for a clearer differentiation between "industrial" and "local" organic farming, proposing stronger and more meaningful labels such as "*Nature & Progrès"*, others pointed out the need for more scientific studies to back health claims and support a shift in public mentality. Nevertheless, many participants acknowledged their own role in this process suggesting that organic farmers must improve their commercial strategies and actively engage in customer education.

Overall, it was underlined that, whether products are organic or not, being able to sell directly and locally remains highly favourable. Indeed, local markets were described as currently performing well. Yet, there seemed to be challenges to effectively showcase the quality of the organic products. Indeed, participants underlined the importance of presenting clean and aesthetic products, but it was noted that communicating the added value of organic products to their costumers is not always easy and requires extra effort in terms of marketing and education.

2.3. Demand and pricing

To start with, many of the participants experienced a significant increase in demand during the COVID-19 global pandemic as there was a shift towards more organically and locally produced goods.

However, a significant decline in organic demand followed, which some participants described as "mini crisis" of the organic sector. The interviewees felt this was further exacerbated by macro-economic events such as increased inflation, seasonal droughts and livestock disease outbreaks. Moreover, some participants noted that this downturn led to a certain number of farmers abandoning organic practices. Despite this, the producers now feel that the current demand has stabilized and may be slowly increasing.

Interestingly, the participants reported a shift in their clientele: whereas earlier demand was primarily from committed environmentally conscious consumers, it is now also composed of broader range of "everyday people", including both wealthier consumers and those with less financial resources. The latter purchase raw ingredients to cook at home more economically, which was emphasized to be a key way to make organic products affordable for everyone.

Nevertheless, affordability remains a concern for the demand, especially in times of current economic uncertainty, with several farmers acknowledging that part of the population simply cannot afford organic products. It was also pointed out that a significant part of consumers prefers local origins or breeds such as the Belgian Blue over organic certification, which supports the idea that organic is not always the primary purchase criterion.

Yet, perceptions around the pricing of organic products were still nuanced among participants. Indeed, while the higher cost of organic products is often cited as a barrier for consumers, especially in large retail chains, many farmers did challenge this assumption. Several interviewees underlined that the higher prices in the retail chains are largely due to intermediaries and profit margins rather than actual intrinsic cost of the goods. It was noted several times that organic products coming from direct sales or small shops are not necessarily more expensive. Additionally, some farmers even mentioned that their direct farm stores are able to offer competitive prices by avoiding wholesalers and middlemen in the chain. Besides, it was pointed out that stores in cities often have exorbitant prices for organic products: *"I find the prices of organic products in cities to be exaggerated, they could easily sell them cheaper."* (Farmer 1). However, it was also underlined that the economic situation of the region the farm has its activity heavily influences the acceptance of the increased prices.

The perceptions that organic goods are always more costly does indeed remain widespread and can deter consumers, even in the cases the prices are comparable or only slightly higher than conventional products. It was also acknowledged that organic vegetables tend to be indeed more expensive but products like meat or milk not necessarily. Additionally, it was insisted upon by the farmers that, if there is a price difference, it is justified given the superior quality and ethical considerations tied to the organic farming practices: *"(…) you can't compare apples with oranges; the quality difference comes at a cost."* (Farmer 5). Ultimately, while the price seems to be still seen as a real obstacle for certain consumers, many farmers believe that direct sales not only help to manage prices but also improve the financial health of the farm itself.

Lastly, as mentioned before, the farmers underlined growing scepticism towards organic products due to the involvement of large retail chains as well as misleading media narratives which blur the lines between industrial and local organic products. Despite this, the interviewees still agreed that there is a desire of some customers to consume healthier and more ethically, and that clear communication about organic production methods, product quality differentiators and Walloon realities of organic farming are essential to sustain demand in the future.

2.4. Supply

The participants reported to be quite flexible with their supply of organic goods, to better align with the fluctuating demand of products. Although, there were still significant structural and economic limits.

While farms with larger land holdings were able to increase herd sizes to meet an increase in demand, others noted that they had reached the upper limit of their production capacity, which was especially the case during the pandemic induced demand growth: *"We have a certain number of hectares and animals, we can't increase beyond that."* (Farmer 8). To add to this, production did also seem to be constraint by the breeds of the animals, exchanging disease resilience for lower yield.

In stark contrast, one farmer reported that he cannot allow his herd to decrease as his revenue is already low, the focus is thus on getting new clients rather than aligning with the low demand. Yet, for most it was evident that in case of market saturation, their production had to be geared down.

Besides, several participants emphasized the importance of aligning production with economic viability of specific products by prioritizing more profitable products and reducing or even limiting those with lower margins such as butter or milk. To add to this, adapting to customer feedback such as with meat bundles was also pointed out as an adaptation measure.

In essence, the interviews seemed to indicate that the supply is a balancing act which requires producers to weigh customer expectations, with their respective structural capacities and product margins.

3. Operational farming skills and adaptation

The fundamental different farming approaches of conventional and organic farming was consistently emphasized by participants as organic farms cannot simply replicate conventional practices.

Central to the success of organic practices seemed to be achieving a balanced autonomous farm system. Participants stressed the importance of proper farm sizing, soil health and respecting the biological cycles of the land. Practices such as mixed crop-livestock farming were seen as essential to master. Indeed, farm diversification was a recurring theme as many respondents viewed it as a strategically necessary for the economic resilience of organic farms. The diversification was mostly referring to adding different synergistic animals and crop productions (e.g. getting fertilizer through the animals for the crops while getting feed and straw bedding through the crops), selling multiple product and having diverse marketing channels to strengthen the overall organic project.

Furthermore, the importance of autonomy was heavily underlined, not only for the feed but also for the production chain: *"I do not buy anything from outside because every step of the way I lose margins (…) I created my own butchery"* (Farmer 1).

Additionally, livestock herd management seemed to be critical to avoid veterinary and vaccine use. It was notably underlined that modifying the calving birth schedule to avoid the winter months eliminated the need for indoor births and reliance on medication. By allowing the cows to naturally give birth outdoors, an autonomous and more resilient herd was maintained. Moreover, the importance of slaughter practices was pointed out by many, where male animals were slaughtered first due to the decline in meat quality as the animal ages, whereas females can be kept longer with occasional culling to maintain herd balance.

Besides, some experienced the influence of French agronomists as a turning point in their practices. Indeed, they helped the farmers understand the interconnection between animals, plants, soil and how to rebalance the said soils. Moreover, they demonstrated the importance of adapting organic practices and achieving food autonomy as well as reduce inputs.

However, a sentiment of broader concern about diminishing yield and lack of appropriate techniques to address these declines seemed to be in the mind of many farmers. Indeed, a recurring theme was the challenge to master land management without relying on chemical inputs. Many also expressed frustration over the scarcity of reference points or technical solutions as many technicians hired by the farmers were trained in chemistry but did not focus on soil health nor on a more agronomical approach. A lack of agronomical consultants that help and provide guidance on the viability of farm projects was also mentioned. This gap of knowledge was highlighted by many as a key

hinderance while transitioning. To add to this, participants acknowledged that there is still significant work to be done in farmer education, particularly in areas like accounting as well as business management.

In any case, a strong conviction for organic agriculture has been repeatedly reported to be a prerequisite for a successful and lasting organic transition, as many insisted that conversions should not be driven by purely the economic side. An example was cited of the COVID-19 pandemic where organic producers experienced a significant increase in demand, but which was followed by a rapid decline; without a strong commitment to organic practices farmers may not digest a strong market downturn.

In this context, preparing thoroughly before transition to organic methods was seen as key importance. It was suggested that before transitioning, farmers should visit successful organic farms, speak with experienced producers and do research on suitable livestock breeds and distribution channels. Indeed, understanding where and how to sell organic products was considered just as important as the production process itself.

4. Regulatory and administrative barriers

4.1. Control bodies

Several challenges underlined by the participants concerned the administrative burden associated with organic farming. The organic certification process and certification maintenance involves significantly more paperwork and documentation, especially for the mandatory inspections by control bodies. Some even noted that this increased administrative work as well as the recurring controls may make farmers reluctant to transition.

Furthermore, the requirement to pay for a certification body was also seen as a barrier, while some additionally emphasized the need for a greater flexibility, understanding, communication and guidance from the organic inspectors, especially when mistakes are made by the farmers: *“For me there needs to be flexibility, (…) and a more human approach from inspectors (…) it’s obvious we don’t know everything right away as farmers.”* (Farmer 5).

To add to this, some organic farmers expressed scepticism regarding the applied regulation and conducted controls of imported organic products. There was palpable unease about the equivalency of standards and enforcement applied to foreign products compared to local ones, which tied in a broader reflection about whether the organic certification should emphasise more the local aspects and productions. To add to this, one farmer even suggested that organic constraints should go further as they feel some of what is allowed as laxist when compared to their own organic standards.

Despite these constraints, positive experiences were expressed regarding specific control bodies, such as the Certisys. Their folder system was seen as a helpful tool to manage administrative tasks and paperwork. A practical strategy of hiring farm staff was also noted as a way to better manage and focus on the additional administrative burden.

Surprisingly, a recurring challenge that has also been underlined by several producers was the impact of the Federal Agency for the Safety of the Food Chain (the “FASFC”) regulations on small-scale farming businesses that transform raw products. The many costs associated with mandatory product analysis and compliance are seen as a burden for smaller scales of operations such as organic farms.

To add to this, the stringency, complexity and frequency of these controls were seen as particularly burdensome and were noted to be discouraging for producers wanting to propose new products.

4.2. Subsidies and governmental bodies

Whereas some considered subsidies not to be sufficient, some did. But nonetheless, there was some frustration over the delay in receiving financial support which often arrive a year after the request due to the delays in controls and validation.

A significant concern was also expressed by the participants regarding senior officials in the Walloon region. Their seemingly lack of understanding of on-the ground farming practices, and rigid and stringent rules were seen as unsupportive of the dynamic nature of agriculture. Besides, some participants also expressed scepticism about governmental promises from the Walloon region which were rarely followed through. Moreover, a need for the governments to support local projects to better compete with supermarkets was expressed by some.

Importantly, frequent changes in policies and rules which occur every few years were also seen as a challenge as these constant changes create an environment of uncertainty and hinder long-term project planning and stability.

Discussion

The discussion segment's objective is to interpret the results and to link them back to the existing literature while also reflecting on the broader meaning, implications and limitations. The overall aim of the thesis is to identify the financial and commercial barriers Walloon organic livestock farmers face. This study not only addresses the gap in the literature concerning a significant lack of up-to-date, qualitative research studies aimed at Walloon livestock farmers but also provides deep insights for Wallonia on a broader problematic Europe faces at the moment, being the balancing act of soothing agricultural frustration, ensuring food security and environmental protection.

During the interviews, four key themes and their respective sub-themes have emerged. The first theme are the financial considerations of the economic viability, the transition period and short circuit sales. The second theme regards broader market dynamics such as distribution channels, marketing, demand and pricing as well as supply. As for the third theme, it concerns the operational farming skills and adaptations. And lastly, the fourth theme is about regulatory and administrative barriers, notably regarding the control and governmental bodies as well as subsidies.

It is highly recommended to consult the overview of the findings found in appendix 9, which illustrates the framework of the barriers navigated by Walloon organic livestock farmers.

1. Financial considerations

1.1. Economic viability

Expenses and farm efficiency

The interview revealed that expense management, in combination with the subsidies, played a significant role in the economic viability of the farms. Indeed, support payments are suggested to be essential to achieve a comparable level of profitability when compared to conventional farms (Offermann & Nieberg, 2000) and play a key role in the financial viability of organic farms in Europe (Stolze & Lampkin, 2009).

However, there seems a ceiling of revenue an organic farm can generate, thus farms that were proficient in expense management seemed to fare better than those who didn't. Cost control as a risk management tool is not only reflected in the literature (Tzouramani et al., 2014) but also seems consistent with figure 14 of the financial analysis conducted on Walloon accounting data, where allocated expenses i.e. variable expenses of organic farms were much lower when compared to conventional farms. The literature also suggests that organic farms have higher production expenses as they incorporate true environmental costs (Crowder & Reganold, 2015; Hanson et al., 2004; Pretty et al., 2001), especially if their autonomy is limited (Offermann & Nieberg, 2000), which thus indeed commands expense management on the farmer's part. The key importance of autonomy, which in turn reduces expenses, has also been highlighted by the interviewed macro-actors.

The aforementioned revenue ceiling seems to result from the inability to scale an organic farm beyond a certain point of self-sufficiency. Indeed, it does seem that if production output is pushed beyond self-sufficiency inputs, the added costs of organic inputs such as additional fertilizers and feed, overpower any benefits there may be in the attempt to scale. As a result, organic farms need to function as efficient as possible with their available structural means of production. The literature does

not directly mention this nuanced efficiency need. However, the lower yield, feed efficiency and land use efficiency of organic farms has been pointed out (Crowder & Reganold, 2015; Gaudaré et al., 2021; Reganold & Wachter, 2016; Offermann & Nieberg, 2000) which in turn can indicate a significant need to counter-act these inherent attributes by increasing the efficiency of the farms as much as possible.

An additional hint of incompatible scalability of organic farms can be found in the literature as increased land area increases production risk (Tiedemann & Latacz-Lohmann, 2013) and smaller organic farms allow farm managers to control production risks more effectively (Hanson et al., 2004). The push towards smaller farms is also emphasized in the current strategic CAP plan of Wallonia, where diminishing returns on aids are applied the larger and more extensive the farm is, scaling up an organic farm is thus not encouraged, which additionally aligns with the financial analysis revealing that organic farms are very similarly sized and significantly smaller than conventional ones.

Profitability due to farming experience and skills

Besides the expense control, profitability has been mentioned to be linked to increased farming experience, resulting in better soil quality and fodder quality as well as livestock disease immunity. This aligns with the literature; farm manager skills, learning ability, financial skills and education significantly influence farm outcomes (Acs et al., 2007; Kerselaers et al., 2007) as it is an important risk management tool (Flaten et al., 2005; Gardebroek et al., 2010). Farming skills will be further addressed in segment “3. Operational farming skills and adaptations”, but we can already deduct that it is a key aspect, not only profitability, but also overall economic viability of the farm as it also ties into the above expense control which heavily relies on the correct decisions of the farm manager.

Price convergence and passing on the costs

Frustration was expressed regarding price convergence of conventional and organic products such as conventional Belgian blue meat attaining organic meat prices or dairy products from conventional systems approaching the price level of their organic counterpart. To add to this, some farmers had significant difficulties to pass on increasing costs of inputs on to their customers

This begs the question whether the price premium (if even achievable) organic farms generate are enough of a financial buffer for the producers and whether consumers no longer perceive a clear price-quality distinction. Both the price convergence and the difficulties of passing on the costs erode the price premium as well as profitability and disincentivizes further investments in organic systems.

The lesser price premium there may be at the moment is consistent with the literature as it is suggested that there can be an instability of price premia, which can even drop completely (Hanson et al., 2004; Labajove et al., 2022). This is a significant commercial and financial hinderance as the price premia are not only suggested to be vital for organic farmers to supplement their income and reduce their dependency on direct support payments (Läpple & Rensburg, 2011), but also for the development of organic systems as a whole (Fairweather, 1999), notably, as favourable gross margin differences between organic and conventional farms are suggested to have an impact on organic conversion triggers (Musshoffer & Hirschauer, 2008).

The insights from the financial analysis also align with the fact of lacking price premia, as shown in figure 16, conventional farms not only have a higher gross margin but also a higher GOS, which is also consistent with macro-actor 3 stating that organic margins are barely sufficient.

Macro conditions

An organic demand boom due to the pandemic followed by a sharp decline was underlined by the participants. The decline was described as further exacerbated by increased inflation, seasonal droughts and livestock disease outbreaks which led to several farms abandoning organic practices. However, as of today, the producers felt that current demand has stabilized (although stabilized at the bottom due to the decline) and may be slowly increasing.

Nevertheless, future similar events can be a threat to the organic farms as cost management is of critical importance (as discussed above), organic farms do not have quick fixes for disease outbreaks (Hanson et al., 2004; Interview of macro-actor 3, 2024) and climate is seen as a key production risk (Hanson et al., 2004; Labajova et al., 2022; Interview of macro-actor 3, 2024).

Considerations for the research question

As for the first answer piece, we can deduct that financial and commercial barriers exist in the form of lacking organic price premia and difficulties to pass on costs, but also due to a structurally constrained economic model that relies heavily on internal cost efficiency, farming autonomy and managerial expertise to offset the limited scalability as well as revenue ceilings, by conducting rigorous cost control of the organic farms. Moreover, organic producers may be significantly exposed to future macro events such as high inflation, disease outbreaks and climate anomalies.

1.2. Transition period

In stark contrast with what the literature suggests, most farmers did not have significant financial issues during the conversion period. While being able to sell as conventional and receiving the increased conversion aids were deemed by most as sufficient, some did claim a lack of aids and were still challenged by the higher costs and locked away price premia of the conversion. Additionally, investments in farm machinery, to counteract the lack of chemical intervention, and overall farm installations, where a conventional farm was entirely bought and transformed, were reported to cause some cashflow issues.

This mixed picture indicates that there are still vulnerabilities in policy instruments that buffer transitional costs for many. Now, the additional support payments granted are only meant to cover 75% of the occurring losses of the transition (CAP Strategic Plan Wallonia, 2023). However, conversion issues for Belgium, as suggested by Kerselaers et al. (2007), still seem to exist. Kerselaers et al. (2007) additionally suggested that the risks associated with the conversion period are the actual reasons for low conversion rates as the yield and income is lower, which may be further exacerbated by a lack of experience of farmers (Acs et al., 2007). Interviewees and macro-actor 3 aligned with this statement as it was emphasized that the conversion needs to be rigorously planned and analysed. But the farmers pointed to a knowledge gap as there seems to be a lack of agronomic consultants that can guide them. Interestingly, while the literature emphasises the importance of farming skills, it does not point to a lack of agronomic consultants.

In any case, support payments are suggested to be essential to alleviate economic pressure during that period (Kerselaers et al., 2007), which still seems to be the case for Wallonia as of today.

As for investment financing challenges, it is indeed suggested that organic farms seem to be particularly vulnerable to declining infrastructures such as farm machinery and elevated prices of agricultural land (Hanson et al., 2004; Interview of macro-actor 1, 2024). Whereas the literature points to potential financing issues due to unfamiliarity of banks regarding organic systems (Hanson et al.,

2004), macro-actor 2 assured that there is not a higher cost of debt for organic farms but highlighted the need to bring attention to cashflow issues transitioning farms can have. A fair deduction to make is thus that the investment financing difficulties also tie to the above income issues.

Nevertheless, even if investment aids exist (CAP Strategic Plan Wallonia, 2023), that influence the overall transition process by increasing available resources such as fixed assets and land (Czubak et al., 2021), it may, however, be incompatible, up to a certain point, with the limited scalability of organic farms as discussed in the previous segment.

Considerations for the research question

Whereas some farms managed the transition period without much financial difficulties, we can still consider that financial challenges may still emerge due to vulnerabilities in the support system, and due to the higher costs, lower yield and lower income resulting from the organic constraints and locked-away price premia. The lack of organic experience of farmers exacerbates these barriers and thus the transition needs to be thoroughly planned and analysed, which is made more challenging by the insufficient availability of agronomic advisors. Furthermore, investment challenges seem to also tie into the income issues of a transition, to add to this, investments aids can be seen as incompatible, at least up to a certain point, with the limited scalability of organic farms.

1.3. Short circuit sales and profitability

As reported numerous times from the participants, short circuit direct sales clearly seem to facilitate higher profit margins for organic farms as they enable own price setting, eliminate intermediaries and therefore allow withholding a higher share of revenue. These profitability and independence facilitators were seen to be particularly potent when product quality and customer loyalty were maintained.

Furthermore, short circuit sales enhance business autonomy and economic independence, which was seen as a critical part for organic operations. Indeed, it allows organic farmers to be freed, to some degree, from imposed pricing structures and limited negotiation capabilities they may find with wholesalers or supermarkets. Farmers additionally reported that selling to the latter two entities reduces their margins.

While the literature suggests that diversifying marketing channels (e.g. with small-scale markets or farmers' markets) is an important market risk management tool (Hanson et al., 2004), it does not point to any profitability increases for short circuit sales.

However, it is within reason to assume that the reported profitability increase of short circuits is linked to the literature, as indeed, regional or local products are key drivers for farm product demand (Cubero Dudinskaya et al., 2021; Filippini et al., 2020; Hughner et al., 2007; Janssen & Hamm, 2012).

Furthermore, an important hinderance of organic farms is the distance of supply and delivery points (Home et al., 2019) which is thus diminished when utilising short circuits and aligns with the importance of local supply chains for the farms (Hanson et al., 2004). Additionally, Macro-actor 3 highlighted the need to have short circuit channels in place before even transitioning. Moreover, the importance of customer loyalty when combined with short circuits can be agreed with the fact that local communities are suggested to be beneficial for organic farmers (Hanson et al., 2004; Darnhofer et al., 2005; Filippini et al., 2020).

Whereas most agreed that short circuit sales were highly beneficial, it was also noted that for some farmers the financial advantages of direct sales have diminished severely over time. Reportedly, this was due to the rising costs impacting their activity which were not transferable through price increases, as price competitivity, as cited, when compared to conventional Belgian blue activities, was difficult to maintain in fear of losing customers.

The difficulty of passing on the cost to the customers has been already discussed in segment "1.1. Economic viability". Nevertheless, as this concerns specifically short circuit sales, we can add to our previous analysis that the preference of local products (Cubero Dudinskaya et al., 2021; Filippini et al., 2020; Hughner et al., 2007; Janssen & Hamm, 2012) resulted in a wide adoption of short circuit sales to harvest the benefits which aligns with the institutional theory's mimetic isomorphisms stating that successful strategies are imitated (DiMaggio & Powell, 1983). But it is reasonable to assume that this homogeneity may lead to gradually diminishing profitability among adopters, aligning with Grovermann et al. (2021).

To add to this, short circuit sales, while enabling higher margins, seem to have a trade-off in scalability and sales volume. They were seen as not scalable enough to support significant business growth. This issue led to a reversion back to conventional for one farm which could not sustain debt repayments while being organic. The literature does not address scalability issues of, specifically, short circuit sales, but the emergence of it through the interviews further supports and ties again to the overall scalability challenges of organic farms as discussed and analysed in segment "1.1. Economic viability".

Considerations for the research question

Short circuit sales not only play a key role to increase the profitability of farms but also align with customer preferences for local products. However, they present limitations regarding scalability and intensification of farm production. Furthermore, the attractivity of short circuit sales could be gradually reversing due to the homogeneity of the competitive environment.

2. Market dynamics, distribution channels and consumer perceptions

2.1. Distribution channels

Distribution channels and their challenges

Distribution channel efficacy and maturity play a key role in increasing organic market share and price premia (Thøgersen, 2010). The farmers used a variety of distribution channels by often combining direct and indirect sales (e.g. farmers' markets, small stores, restaurants, cooperatives, wholesalers) to balance visibility, customer relationships and volume, which conforms to the theory as the usage of diverse channels is suggested to be a market risk management tool (Hanson et al., 2004).

Whereas discussed in the previous segment, direct sales offer better margins and closer customer contact, cooperatives, wholesalers and retail chains remain key outlets for larger volumes of products. Despite this diversity, a clear trend was strengthening short circuit sales, as local channels seem to be growing in numbers, which could be due to the effects mimetic isomorphisms as described

by DiMaggio & Powell (1983) and could lead to adverse effects as also discussed in the previous segment.

Besides, there were significant challenges regarding distribution channels. Indeed, a commonly cited problem was the requirement of consistent supply and product quality when dealing with wholesalers and restaurants, who expect regular deliveries in sufficient quantities which was hard to ensure for the organic farmers. Similarly, wholesalers often required a minimum volume to justify transportation and logistics involved of buying the products, which was hard to achieve in some instances. Moreover, strict delays were imposed between the moment wholesalers order the product and the moment when the products had to be ready which was seen as difficult to manage for the producers.

Macro-actor 2 did also point out the irregularities in organic production and its adverse effects on supply chains. But, while the literature did not directly reveal such challenges, they can still be linked to the combination of lower output of organic farms (Crowder & Reganold, 2015; Gaudaré et al., 2021; Reganold & Wachter, 2016; Shennan et al., 2017) and the production volatility as suggested by Tiedemann & Latacz-Lohmann (2013), which influence the ability to meet production volumes required for certain distribution channels. Moreover, the transportation and logistics challenges of the farmers also conform to Home et al. (2019)'s findings suggesting that the distance of supply and delivery points is a key hinderance for organic farms. Indeed, the challenges the farmers faced on that regard could certainly be diminished if the distance between supply points is reduced, especially considering that several farmers emphasized the inefficiency and lack of return of time invested when attending small markets or delivering themselves an insignificant quantity of products to small shops, even if the one-way distance is as low as thirty minutes of road time.

Furthermore, limited distribution opportunities were pointed out for supplying saturated products such as milk, for niche products such as goat meat and due to competition offering similar products. While some stores may show limited interests in organic products (Hanson et al., 2004), these limited distribution opportunities may point to a market saturation which is consistent with the literature suggesting a possible emergence of market saturation (Grovermann et al., 2021), which all the macro-actors also pointed to.

In addition, it was highlighted that industrial farm enterprises are hostile towards smaller independent farm cooperatives and may sabotage them, this fact has not emerged in the literature but is of utmost importance. To add to this, establishing cooperatives has been reported to be challenging in Wallonia due to a lack of commitment of partners. This is undoubtedly a significant barrier especially as organic farms can leverage participation in cooperatives to secure shelf space and increase their product visibility but also their competitiveness (Hanson et al., 2004).

While the agricultural sector was deemed selfish by some, the importance of maintaining personal contacts and networks was nevertheless emphasized. A lack of personal local network may have significant adverse effects especially considering the literature also heavily supports the importance of them (Hanson et al., 2004; Darnhofer et al., 2005; Filippini et al., 2020) and suggests that a lack of peer social networks can lead to sense of division among farmers (Home et al., 2019). Moreover, support networks can increase resource efficiency by sharing labour, equipment, information and ideas but also can provide a platform for collective lobbying to advocate for organic interests (Hanson et al., 2004).

Large retailers and supermarkets

Supermarkets and large retailers were often described by the participants as prioritizing shareholder profits over fair remuneration of producers. Companies indeed have a fiduciary obligation towards their shareholders which is unavoidable and is certainly not be ideal from the producers' perspective.

Furthermore, while it was acknowledged that there were practical benefits to sell through large retailers for managing production surplus, it was deemed too dangerous by producers to become too dependent on large retailers especially if the production is manageable enough to be easily sold through direct sales. This conforms to the idea that diversifying market channels, and thus not relying on one single sales outlet, reduces marketplace risks (Hanson et al., 2004). This seems to be of further importance if the single outlet is a large retailer.

Moreover, whereas supermarkets were seen as a potential entry point for organically unfamiliar customers, they, reportedly, blur the lines between imported organic products and local organic products which, reportedly, had negative effects as it undermines the value associated with local organic farming. Although this observation is not directly reflected in the literature, we can still assume within reason that this has negative effects on the producers as the local characteristic of a product is a key driver for demand (Cubero Dudinskaya et al., 2021; Filippini et al., 2020; Hughner et al., 2007; Janssen & Hamm, 2012) and thus if imported and local organic products are not differentiated by supermarkets, it likely affects demand.

In addition to this, while the literature suggests that current media negatively affects consumers' opinions on livestock products (Hocquette et al., 2018), the organic producers found that large retailers are also damaging their reputation as these companies lack transparency regarding the origin of the products, give insufficient visibility to organic and local producers but also inadequately price these products. This could entail major hinderances.

Indeed, the theory highlights that a lack of visibility and insufficient marketing (Hughner et al., 2007) as well as the visibility of labels (Janssen & Hamm, 2012) but also scepticism of labels (Hughner et al., 2007), which can be linked to the lack of transparency of the origin and damaged reputation, affect consumer demand and price premia negatively.

The producers highlighted that the price is the main obstacle for organic demand, consistent with the literature (Hughner et al., 2007). This is exacerbated by the fact that large retailers reportedly conduct inadequate pricing (i.e. setting prices too high for organic products) which gives the image to organic products as being too expensive, which in turn leads to a competitive disadvantage when compared to conventional products as per the literature (Darnhofer, 2010; Filippini et al., 2020), which can therefore reasonably be assumed to also affect organic demand outside of large retailers.

For the organic producers doing business with large retailers, price negotiation difficulties or even impossibilities were pointed. To add to this, dominant retailers like Colruyt and Delhaize are reportedly difficult to access because of their conventional product preferences. Indeed, consistent with the literature, some stores may show limited interests in offering organic products (Hanson et al., 2004). Considering that the availability and inconvenience to access organic products reduces demand (Hughner et al., 2007) and that most consumers do all their grocery purchases at large retailers for convenience reasons, it is safe to assume that this lack of interest of supermarkets negatively affects producers.

Overall, the results combined with the literature can be linked and are consistent with Koppenberg (2023)'s findings suggesting that the mere presence of large retailers negatively affect the price premia of organic farms.

Considerations for the research question

Regarding distribution channels, relying on one sales outlet, especially large retailers, entails significant market risks. Besides, the homogeneity of the growing number of short circuit sales may lead to a decrease in profitability overtime.

Moreover, inconsistent and lower organic yields lead to challenges when supplying certain product outlets that require a consistent supply of goods, have strict minimum order volumes or stringent timing requirements. Additionally, while some distribution channels are difficult to access due market saturation such as milk or due to the product being too niche such as goat meat, the distance between supply and delivery points is also a key hinderance.

Furthermore, cooperatives are seen as key to secure shelf space, increase product visibility and competitivity. However, not only are farmer cooperatives difficult to create due to a lack of commitment of partners but are also further hindered by the hostility of large farming industries towards smaller independent farmer cooperatives. In addition, personal contacts and peer networks are critical and a lack of them can have significant negative effects.

To add to this, large retailers have various adverse effects on organic producers. They blur the lines between imported and local organic products, which has negative effects on the demand as a product's local characteristic is key. The supermarkets are also damaging to the reputation of organic products due to the lack of transparency of the origin and grant insufficient visibility to local producers, while also inadequately pricing them, leading to an expensive image of these products which could affect demand outside of these large retailers.

Additionally, price negotiations with supermarkets are challenging while also being difficult to access due to a preference for conventional products. The lack of interest for organic products of supermarkets leads to a decrease in availability and convenience for consumers to access organic products, which in turn reduces demand.

2.2. Marketing and demand analysis

The interviews revealed that the transition to an organic farm not only requires organic farming skills but also a strong marketing strategy. The literature aligns on this observation as it is suggested that organic conversions should not only focus on organic compliance but rather should be seen as a production and innovative business strategy (Kerselaers et al., 2007), this is especially important considering the apparent homogeneity among organic farms due to the effects of the institutional theory which is suggested to reduce innovation (DiMaggio & Powell, 1983). Additionally, producers reportedly had financial losses during the marketing integration process, which in turn has not emerged from the literature.

Furthermore, while the interviewees underlined that economic support attracted numerous farms to make the organic transition, which led to massively increased competition, the economic condition that once favoured organic farms has now shifted to local products, this demand shift is consistent with literature which indicates that the local attribute of a product is critical to drive demand (Cubero Dudinskaya et al., 2021; Filippini et al., 2020; Hughner et al., 2007; Janssen & Hamm, 2012).

As a result, organic farms have been reported to struggle with commercial visibility and market presence.

Besides the negative influence of supermarkets on the price image, reputation as well as visibility and thus demand (as discussed in the previous segment), participants pointed to a confusion between organic and local products among consumers, which is also reflected in the literature (Hughner et al., 2007). Consumers automatically assume that local products are organic which was seen as a barrier to informed consumer choices. Indeed, because of this, consumers were seen to fail to grasp the health and environmental benefits of certified organic products. This is problematic as the theory suggests that key drivers of organic demand are the health and environmental aspects as well as animal welfare (Hughner et al., 2007; Cubero Dudinskaya et al., 2021), therefore it is within reason to assume that conventional local products, which are automatically perceived as organic, absorb a certain demand which should have been attributed to organic products. Reportedly, this is exacerbated by the proliferation of various labels, which is also supported by the literature as these are suggested to drive product demand (Janssen & Hamm, 2012; Cubero Dudinskaya et al., 2021).

While many underlined their price competitivity when compared to supermarkets, it was emphasized that organic products are still being perceived as inherently more expensive. This has been already addressed in segment “2.1. Distribution channels”. However, the participants underlined that the argument should move beyond the price and stressed the need for education and communication campaigns about quality, sustainability and taste but also acknowledged their own role in this process, their responsibility to set up a viable commercial strategy and to show case the quality of their products presented cleanly and aesthetically. The latter is important as cosmetic defects are suggested to affect demand (Hughner et al., 2007). Overall, it seems consistent with literature that the economic viability of organic farms requires adaptation of practices to the specific requirements of organic systems (Kerselaers et al., 2007).

Considerations for the research question

The findings indicate that conversions should not only be about organic compliance but also need to have a commercial strategy in place. Setting up such strategies may be difficult without guidance and could lead initial financial losses.

In addition, numerous farms were attracted to organic practices by the initial economic support. However, the trend has now shifted from organic to local, which challenges the market presence and visibility for organic producers. In addition to the negative visibility, reputation and price image demand influence of supermarkets, the current confusion between local and organic (i.e. local products are automatically seen as organic) leads to a demand absorption in favour of local products.

Besides having a viable commercial strategy and adapting to requirements of organic systems, there seems to be also a struggle to show case the quality of the products and a need to conduct education and communication campaigns in favour of the organic benefits, either led externally or by the farmers themselves.

2.3. Supply

As for the supply side, the interviews revealed a balancing act between customer expectations, structural capacities and product margins. Indeed, the producers generally adapt their production depending on the demand either by scaling it down or up. However, there were limits in both directions. On one hand, producers could not scale up beyond structural capacities to meet a surge in

demand (as it was the case during the pandemic) but also on the other hand, some could not scale down as this would impact their already low revenue and instead focused on gaining new customers. Whereas the upscaling issues of organic farms have already been discussed in the first segment, the literature does not point to production downscaling adaptations.

Moreover, some farmers adapted their production focus depending on the margins of the respective products, favouring higher margin products and reducing or even limiting lower margin ones. It is reasonable to assume that this adaption requires a certain financial cost accounting oversight of the production, which may not be a widespread practice among farmers as accounting and business management knowledge were deemed, by the farmers, as lacking areas. Now, the literature does not point directly to this, however, it can be linked to the crucial impact of farmer experience and education on the farm viability (Flaten et al., 2005; Gardebroek et al., 2010; Tzouramani et al., 2014).

Considerations for the research question

As for supply adaptations, organic farms have only a limited degree of production volume flexibility. On one hand upscaling is capped by land, herd sizes and a general incompatibility (as discussed in the first discussion segment) whereas on the other hand, some are reluctant to downscale their production in case of a demand downturn as revenues are already low.

Furthermore, to increase profitability, farmers prefer to increase production on high margin items and cutting back on low performing ones. However, this requires a cost accounting oversight of the production which, due to a knowledge gap in accounting and management, can be a challenge to set up.

3. Operational farming skills and adaptation

While the macro-actors pointed to a narrow farming practice gap between conventional and organic, the farmers emphasized that both systems are fundamentally different and that organic farms cannot simply replicate conventional practices.

Central to the success was achieving an autonomous farm system, proper farm sizing, soil health and respecting biological cycles of land. Practices such as proper breed selection and herd management (to lower or eliminate veterinary costs) as well as mixed crop-livestock farming were seen as essential to master as these not only create synergies between animal and crop productions but also have positive cascading effects on cost management and overall farm efficiency.

However, the farmers were concerned about diminishing yields and a lack of appropriate techniques to address these declines as a recurring challenge was to master land management without chemical inputs. These difficulties were seen as further emphasized due to the lack of suitable reference points such as agronomic consultants, whether it be for the viability analysis of a transition or operations of existing organic farms.

Not only are agronomic consultants indeed seen as an important risk management tool for transitions (Tzouramani et al., 2014), but also seem to increase conversion rates, as some farmers specifically transitioned because of the knowledge shared by agronomic consultants. Therefore, it can be deducted that if farmers feel confident in their skills and have a clear vision on the steps to take, they are more likely to convert and maintain a viable organic system.

Overall, conforming with the theory underlining the importance of farmer skills and experience (Gardebroek et al., 2010; Flaten et al., 2005; Tzouramani et al., 2014), the testimony of farmers narrows down to the critical importance of closing the existing knowledge gap regarding farmer, education, skills and experience as much as possible. Besides the lack of consultants, the knowledge gap could be due to lacking local support networks and access to information sources, as these are suggested to be key to enhance conversion rates (Kallas et al., 2009).

Considerations for the research question

The organic farmers face a knowledge gap which could be due to a lack of support networks and access to information, which cascades to every aspect of their organic farm systems and is amplified by a lack of suitable agronomic advisors and reference points.

4. Regulatory and administrative barriers

4.1. Control bodies

While not emerging from the literature, the significative administrative burden and mandatory, recurring inspections linked to organic certification were underlined as being a challenge. It was even noted that this could make farmers reluctant to organically transition. While a farmer expressed that hiring farm workers helped to ease this burden, paying the additional salary expense may not be worthwhile.

Additionally, the requirement to pay for a certification body was also seen as a barrier but more importantly, it was greatly emphasized that organic inspectors should better communicate, be more flexible, understanding and provide guidance to farmers when mistakes are made. While these difficulties are not reflected in the literature, these lacking areas could further tie into the previously mentioned knowledge gap, as farmers commit mistakes due to it, while inspectors do not seem to provide guidance to facilitate simpler compliance.

Moreover, the farmers expressed scepticism regarding the applied regulations and conducted controls of imported organic products, which were seen to not have equivalent standards and enforcements. This observation aligns with findings in the literature, suggesting "*inconsistent interpretation of rules, uneven rule enforcement and grey areas*" in the certification system are areas of risk for farmers (Hanson et al., 2004, p.223). It is within reason to assume that this could lead to a competitive disadvantage for Walloon farmers if foreign organically certified products are produced while being less constrained in the practices.

A recurring challenge was also linked to the complex and stringent regulations, controls and costs of the Federal Agency for the Safety of the Food Chain (The "FASFC"), which had an impact on small-scale farming business transforming farm goods. As a result, it was noted that the FASFC burden could be discouraging for producers wanting to propose new products. While not directly addressed in the literature, it can still be linked to various points of our previous analysis; these challenges can have a significant impact considering the key commercial importance of product diversity and the widely different margins a producer can generate with different types of products created through farm product transformation.

Considerations for the research question

Among the barriers identified are the significative administrative burden and certification fees regarding organic certification and certification maintenance. Moreover, a lack of clear supportive guidance from inspectors in case of mistakes, which is amplified by the knowledge gap of farmers, have been identified as an hinderance.

Furthermore, due inconsistent rule enforcement and grey areas regarding the equivalent standards of imported organic goods, Walloon farmers may be exposed to a competitive disadvantage due to foreign organic farms being less constrained regarding their organic rule framework.

Additionally, while product diversity is key for commercial viability and enable product margin management, it is significantly hindered by the stringent FASFC controls and regulations. To add to this, the fees associated with FASFC compliance are seen as particularly burdensome for smaller scale businesses like organic farms.

4.2. Subsidies and governmental bodies

Besides the initial one-year delay in receiving the financial support, subsidies were considered sufficient by some, while others had an opposing view. It does, however, point to vulnerabilities.

On one hand, the expression of famers stating that subsidies are not sufficient aligns with the literature suggesting that organic farmers see the institutional risk linked to support payments and policies as their main concern (Flaten et al., 2005; Labajova et al., 2022). This is especially relevant considering subsidies are seen as essential in order to achieve a similar profitability than conventional farms (Offerman & Nieberg, 2000), are a key component of financial viability of organic farms (Stolze & Lampkin, 2009; CAP Strategic Plan Wallonia, 2023) and high financial support has high correlation with well performing farms (Giannakis & Bruggeman, 2015). However, on the other hand, supporting policies could unintentionally make organic farms more appealing to lower-performing farms (Pietola, 2001).

Furthermore, participants expressed concerns and scepticism regarding senior officials in the Walloon government which were seen as overall unsupportive of the regional agricultural sector (e.g. not granting certain aids and interfering with agricultural practices). Which is crucial as supportive policies which reflect governmental and societal preferences encourage sustainable farming practices (Lohr & Salomonsson, 2000) while the presence of local agricultural authorities is also suggested to enhance conversion rates (Kallas et al., 2009).

Lastly, frequent changes in policies and rules were seen as a challenge as it creates an uncertain environment and hinders long-term project planning. This can be agreed to, not only the literature, as farmers are suggested to be concerned about agricultural policy risks (Flaten et al., 2005; Labajova et al., 2022; Hanson et al., 2004) but also can be a significant hinderance considering our previous analyses (notably in 1.2. Transition period) indicating that thorough planning is necessary for organic farm viability.

Considerations for the research question

Through the analyses, it is undeniable that subsidies are crucial for the viability of organic farms. While there is a split over whether support payments are adequate, many still found them insufficient.

To add to this, there seems to be a barrier specific to Wallonia concerning a distrust regarding senior Walloon governmental officials that are seen as overall unsupportive of the agricultural sector.

Lastly, frequent policy changes create an uncertain environment and severely hinder long-term planning that is crucial for viable organic farm strategies.

5. Limitations

While the study provides valuable insights into the commercial and financial barriers faced by Walloon organic livestock farmers, certain limitations must be acknowledged to contextualize the findings and guide future research.

Methodological limitations

No generalisation of the findings is possible as qualitative insights from semi-structures interviews do not permit it. Additionally, due to time constraints and distance, the interviews had to be conducted online or per phone call which could affect participants openness and hide some nonverbal communication.

Scope limitations

By design, the research specifically focuses on Walloon organic livestock farms but also englobes a limited amounts of livestock breeds, mostly bovine and ovine, due to the nature of farming in Wallonia. Therefore, it may not reflect other regions of Belgium, nor the experiences related to other region's livestock breed preferences.

Furthermore, by design, the study aims to have a broad overview of the Walloon livestock segment. As a result, very micro specificities of livestock breed farm types i.e. isolated analyses per livestock farm breed composition are not addressed.

Theoretical limitations

Relevant and up to date literature is very limited. As a result, the literature review may not adequately capture the evolution in the agricultural landscape. However, this is mitigated due to using interviews of macro-actors and a financial analysis to supplement the literature.

Sampling limitations

During the interviews several potential participants did not want to be interviewed. Reasonably, due to human nature, farmers that are more successful may be more willing to get interviewed on their practices than those who are struggling. Thus, the interviews may be skewed towards, on average, better performing farms which could obfuscate the degree of importance of some challenges or even completely obstruct them.

Moreover, the initial plan was to interview several conventional farmers to get additional insights. However, it became quickly apparent that conventional farmers were not as open to interviews as organic farmers, which could leave some nuances undiscovered.

Future research suggestions

Open areas for future research are vast, such as, but not limited to, the specific challenges associated with organically farming every livestock breed which could be addressed using qualitative methods, developing linear regression models using the DAEA database to predict outcomes and understand relationships between inputs and outputs, quantitative supply chain optimisations tailored to the organic Walloon context or lastly, a quantitative study on a curated database of recently transitioned farms.

Conclusion

In conclusion, the study has investigated the commercial and financial barriers faced by organic livestock farmers and offered new insights for the Walloon landscape. Indeed, it revealed a rather complex interplay between several parameters.

To begin with, not only do structural limitations and revenue ceilings lead to the importance of internal cost management and farm autonomy which are reliant on managerial expertise, but challenges also entail lacking organic premia and difficulties to pass on costs.

Furthermore, as for the transition period, the sudden increases in cost, lower yield, locked away price premia and thus lower income in combination with vulnerabilities in the support system, a lack of organic experience and a lack of farm planning due to the scarcity of agronomic advisors, lead to significant difficulties.

To add to this, while short circuits play a key role in profitability and customer preferences, they are not compatible with intensive farming. Moreover, the attractivity of short circuits could see a gradual decrease due to the homogeneity of the market and its competitiveness.

Additionally, not only does the reliance on one distribution channel entail significant risks but also, supply requirements of some cannot be met due to the inconsistent and lower yield of organic farms. Some channels are also difficult to access for saturated products and niche products while in addition, the distance of supply and delivery points and a lack of personal network have significant negative effects. These challenges are emphasized by the hostile nature of big farming industries and the difficulties to create farmer cooperatives.

Moreover, supermarkets have a preference for conventional products and significantly influence the organic farm outcomes and demand. Not only are they blurring the lines between imported and local products, but also, are damaging to the reputation due to a lack of transparency of origin and insufficient visibility. In addition, while price negotiations are difficult, inadequate pricing give an expensive image to organic products, even outside of these entities.

Show casing product quality as well as setting up a commercial strategy can be difficult and can lead to financial losses. To add to this, not only is the demand impacted by the preference shift from organic to local products, but it is also further amplified by the confusion between organic and local products that leads to a demand absorption.

Furthermore, the findings revealed that the producers have limited production flexibility, whether it be upscaling or downscaling, demand shifts in both directions can thus sometimes not be fully met. The results showcased also a supply adaption in favour of high margin products, but which is impaired by the knowledge gap in management and accounting. An overall knowledge gap is indeed prevalent due to lacking support networks, access to information and scarce agronomic advisors.

Whereas organic certification represents a significant administrative burden for farms, inspectors also seem to show a lack of supportive guidance. To add to this, inconsistent rule enforcement of imported organic goods leads to a competitive disadvantage for local farms. Additionally, while product diversity is key for profitability, it is hindered by stringent FASFC compliance.

And lastly, while a distrust in Walloon government officials and frequent policy changes create an uncertain environment which hinder long term planning strategies, support payments are still of utmost importance and in several cases insufficient which indicates vulnerabilities in the system.

By displaying and mapping these diverse barriers (cfr. appendix 9), the thesis highlights critical leverage points for Walloon policymakers, farm cooperatives, agricultural advisors and organic farms to strengthen the Walloon organic livestock sector's resilience. Addressing the challenges in farmer experience and knowledge, certification burden, support payments, distribution channels, governmental bodies, policies and adverse demand impacts could unlock substantial growth and reinforce a key part of the region's value chain and commitment to organic agriculture. However, ultimately overcoming the challenges will require coordination across the different stakeholders in order to sustain a long-term pathway towards equitable and environmentally responsible regional food systems.

Appendices

Appendix 1: Other types of controls

The different types of controls: others

Hereafter are the few last types of controls that can occur:

The reinforced control occurs only if there has been non-compliance identified on key elements during previous inspection. The non-compliant issues will be re-verified (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

The follow-up control occurs only if a non-compliant element has been detected, and a follow-up is required. The inspection aims to verify the implementation for corrective measures (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

The cross-checked control occurs only between certification bodies. They exchange and compare and reconcile certain information regarding specific products traded between agricultural businesses (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

The external inspection occurs only for a farming operator who is a member of a group of farming operators (Walloon Decree, 2022; Regulation (EU) No 848, 2018; Regulation (EU) No 625, 2017).

Appendix 2: Snapshot of chapter 2 of appendix 8 of the Walloon Decree of October 13, 2022

1. Infractions générales		
1000	*Refus de contrôle*	*Article 37 du /848 et Article 15 du /625*
1005	*Refus de contresigner le rapport de contrôle, ou autre document*	*Article 38.6 du /848*
1010	*Refus d'accès à la comptabilité matière ou financière*	*Article 37 du /848 et Article 15 du /625*
1020	*Refus de prélèvement en vue d'analyse*	*Article 37 du /848 et Article 15 du /625*
1025	*Comptabilité, comptabilité matière ou autres éléments non disponibles*	*Article 37 du /848 et Article 15 du /625*
1030	*Comptabilité, comptabilité matière ou autres éléments non contrôlables*	*Article 37 du /848 et Article 15 du /625*
1030a	*a) auprès d'un préparateur, exportateur, stockeur ou importateur*	
1030b	*b) auprès d'un producteur*	
1040	*Balance entrée / sortie irréalisable*	*Article 1 du R2(*
1050	*Séparation insuffisante entre unités de production biologiques, en conversion et non biologiques*	*Article 9.10 du /848*
1055	*Présence de résidus de pesticides*	*Article 9.3 du /848 et AGW Annex Chapitre 2, §2.. b*
1055a		
1055b	a. *Concentration < 1,5 x limite de détermination*	
	b. *Concentration > ou = 1,5 x limite de détermination*	

1050	*Séparation insuffisante entre unités de production biologiques, en conversion et non biologiques*	*Article 9.10 du /848*
1055	*Présence de résidus de pesticides*	*Article 9.3 du /848 et AGW Annex Chapitre 2, §2.. b*
1055a		
1055b	a. *Concentration < 1,5 x limite de détermination*	
	b. *Concentration > ou = 1,5 x limite de détermination*	
1060	*Utilisation d'OGM ou de produits obtenus à partir d'OGM ou par des OGM*	*Article 11 du /848*

1065	*Présence d'OGM*	*Article 11 du*
1065a	*a) Concentration inférieure à la limite d'étiquetage*	*/848*
1065b	*b) Concentration supérieure à la limite d'étiquetage*	
1070	*Absence d'attestation du fournisseur confirmant que des produits autres que des denrées alimentaires ou des aliments pour animaux ne sont pas obtenus à partir d'OGM ou par des OGM*	*Article 11.4 du /848*
1080	*Non-respect des mesures concrètes convenues avec l'organisme de contrôle pour assurer le respect des normes légales*	*Articles 2.4 et R2018/848*
1085	*Absence de registre des plaintes*	*Article 34.5 du /848*
1090	*Procédure de réception des ingrédients, produits ou animaux non respectée*	*Article 23.1 du /848*
1090a	*a) Prouvés biologiques a posteriori*	*ou*
1090b	*b) Non prouvés biologiques a posteriori*	*Points 5 et 6 annexe III du /848*
1095	*Un des fournisseurs de l'opérateur n'est pas certifié*	*Points 5 et 6*
1095a	a. *Le produit fourni est préemballé*	*annexe III du /848*
1095b	b. *Le produit fourni n'est pas préemballé*	
1096	*Un des sous-traitants de l'opérateur n'est pas certifié ou l'opérateur n'a pas déclaré dans sa notification que la responsabilité relative à la production biologique lui incombe toujours et n'est pas transférée au sous-traitant*	*Article 34.3 du /848*
1100	*Plus de trois DAM prononcées simultanément pour un même opérateur*	*Cf. réf de chaqu*
1105	*Communication tardive ou absence de communication concernant un produit suspecté de ne pas répondre aux exigences du Règlement (UE) 2018/48 et de ses règlements d'application, ou du présent arrêté*	*Article 27 poi R2018/848*
1110	*Communication hors-délai ou pas de communication aux organismes de contrôle de données essentielles au système de contrôle*	*Article 39.1 po R2018/848*
1115	*Blocage tardif ou absence de blocage d'un produit suspecté de ne pas répondre aux exigences du Règlement (UE) 2018/48 et de ses règlements d'application, ou du présent arrêté*	*Article 27 poi R2018/848*
1120	*La traçabilité / l'origine d'un produit n'est pas suffisamment démontrée*	*Article 5 poi R2018/848*
1125	*Absence de mesures de précaution prises pour réduire le risque de contamination par des produits ou substances non autorisés*	*Article 28.1 du /848*
1130	*L'opérateur ne respecte pas l'obligation d'enregistrement auprès de l'AFSCA*	*Article 37 du /848 Et Article 15.5 du /625*
1140	*L'opérateur n'a pas ou plus de numéro d'entreprise*	*Article 34.1 et R2018/848 et Article 8 de l'A*
1150	*L'opérateur n'a pas informé le Service d'une modification des informations*	*Article 39.1.d)*

Appendix 3: Example control fee calculation inspired by a vulgarization document of BioWallonie (2024)

Example: An organic livestock farm producing milk using 10 hectares of pastures, 50 dairy cows, 5 cattle aged under one year old and 10 cattle aged from one year to two years.

First, using the point system: 1.670 (base points) + 10*61 (pastures) + 50*30 (dairy cows) + 5*6,3 (cattle under one year) + 10*9,5 (cattle between one and two years) = 3.906,5 points

Then translated into euros:

Minimum ceiling: 3.906,5 points*0,153€ = 598€

Maximum ceiling: 3.906,5 points*0,232€ = 896€

These annual fees do not include the VAT, nor the adjustment based on the health index.

Appendix 4: Snapshot of appendix 4 of the Walloon Decree of October 13, 2022, which lists the elements that are used for the variable point attribution in scope of the thesis.

1.1° Pour couvrir les frais de contrôle, y compris les frais de déplacements et d'analyses, l'organisme de contrôle fixe la grille des redevances annuelles dues par les producteurs au prorata du système de points suivant :

Eléments pris en considération	**Nombre de points**
Montant de base pour une unité de production	1 670
Par entreprise tierce à contrôler, sous-traitant à qui la responsabilité relative à la production biologique n'a pas été transférée	2 030
Par bovin de moins d'1 an	6,3
Par bovin d'1 à 2 ans	9,5
Par bovin de plus de 2 ans	12,4
Par vache allaitante	21
Par vache laitière	30
Par agneau commercialisé	2
Par brebis allaitante	4,5
Par chèvre ou brebis laitière	7,7

Appendix 5: Corresponding LU per livestock type (CAP Strategic Plan Wallonia, 2023, p.884)

Animal	UGB
Bovins mâles > 2 ans	1
Génisses > 2 ans	0,8
Vaches laitières	1
Autres vaches > 2 ans	0,8
Bovins 1 à 2 ans	0,7
Bovins – de 1an	0,4
ovins ou caprins	0,1
équidés	0,8
Cervidés et camélidés	0,2

Appendix 6: Interview guides used for the semi-structured interviews (self-production based on the literature chapters and hypothesises)

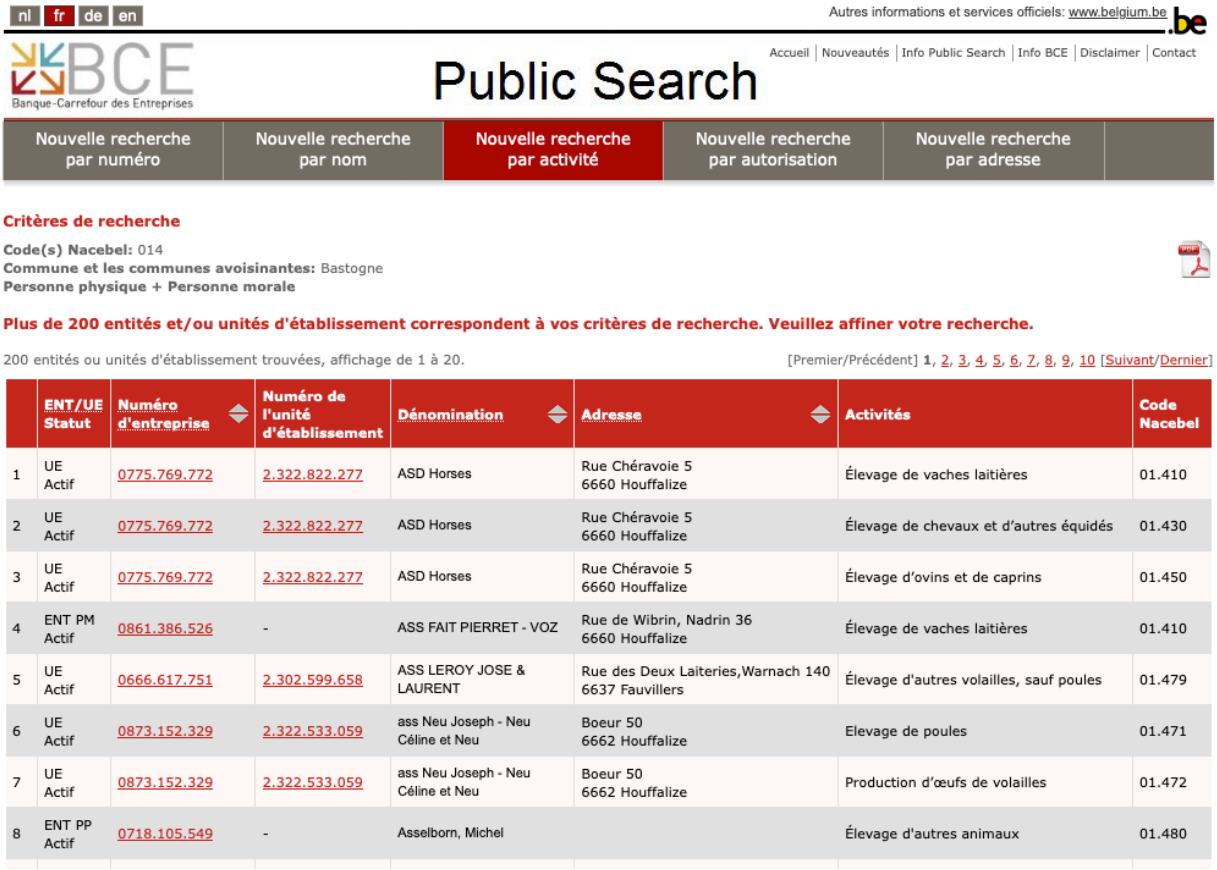
For macro-actors: Open discussion about the organic practices and economic, financial and managerial consideration.

For farmers:

Guide d'entretien pour les éleveurs conventionnels et biologiques	
Question initiale : Avez-vous déjà envisagé ou pratiqué l'élevage biologique ?	
Si oui :	Si non/Si envisagé :
1. Considérations financières 1.1. Quels sont les facteurs qui vous ont motivé à faire la conversion ? S'agit-il principalement de raisons économiques ou d'autres éléments ? 1.2. Comment éprouvez-vous la différence de rentabilité entre élevage conventionnel et biologique ? 1.3. Comment voyez-vous la viabilité de votre élevage ? Est-ce que ça s'est dégradé ou amélioré dans le temps ?	**1. Considérations financières** 1.1. Selon vous, quels sont les éléments qui rendent l'élevage biologique économiquement viable ou non ? 1.2. Quels sont les risques financiers qui vous empêchent de considérer la conversion ? 1.3. Comment voyez-vous la rentabilité de l'élevage biologique par rapport à l'élevage conventionnel ? Quid dans le temps ? (1.1.1. Si envisagé : Pourquoi finalement pas avoir fait la transition ?)
2. Période de transition 2.1. Comment avez-vous vécu la période de transition de deux ans ? 2.2. Quels défis avez-vous rencontrés lors de la transition ? 2.3. Quelles solutions avez-vous mises en place pour surmonter ces difficultés ? 2.4. Qu'est-ce qui rendrait la transition plus facilement réalisable à vos yeux ?	**2. Période de transition** 2.1. En quoi la période de transition de deux ans représente-t-elle un frein pour vous ? 2.2. Comment percevez-vous l'impact financier de la période de transition ? 2.3. Qu'est-ce qui rendrait la transition plus facilement envisageable à vos yeux ?
3. Demande pour les produits biologiques 3.1. Comment percevez-vous la demande actuelle pour les produits biologiques ? Qu'en est-il du prix plus élevé, un frein ? 3.2. Comment éprouvez-vous l'évolution de la demande de vos produits biologiques ? 3.3. Comment adaptez-vous votre production en fonction de la demande ?	**3. Demande pour les produits biologiques** 3.1. Comment voyez-vous actuellement le marché des produits biologiques ? 3.2. Qu'est-ce qui pourrait inciter les consommateurs à accepter de payer un prix plus élevé pour les produits biologiques ? 3.3. Selon vous, qu'est-ce qui différencie la demande de produits biologiques et conventionnels ?

3.4. Comment la demande de produits biologiques pourrait-elle augmenter ? Comment inciter les consommateurs à accepter de payer un prix plus élevé ?	
4. Canaux de distribution 4.1. Quels sont vos principaux canaux de distribution pour vos produits biologiques ? 4.2. Quels obstacles avez-vous constaté pour accéder à certains réseaux de distributions ? 4.3. Quelle est votre perception du rôle des grandes surfaces dans la distribution des produits biologiques ? 4.4. Comment éprouvez-vous la disponibilité des circuits de distribution pour les produits biologiques ? 4.5. Comment la vente en circuits courts pourrait améliorer la rentabilité de l'élevage biologique ? 4.6. Comment pourrait-on améliorer les circuits de distributions pour les produits biologiques ?	**4. Canaux de distribution** 4.1. Comment éprouvez-vous la disponibilité des circuits de distribution pour les produits biologiques ? 4.2. Dans quelle mesure le manque de débouchés commerciaux influence-t-il votre décision ? 4.3. Selon vous, en quoi la vente en circuits courts pourrait-elle améliorer la rentabilité de l'élevage biologique ? Cela pourrait-il vous encourager à vous convertir ? 4.4. Quelle est votre perception du rôle des grandes surfaces dans la distribution des produits biologiques ?
5.Conclusion et fin de l'interview 5.1. Quels conseils donneriez-vous aux éleveurs conventionnels souhaitant se convertir ? 5.2. Avez-vous d'autres remarques sur les opportunités et les défis de l'élevage biologique ?	**5.Conclusion et fin de l'interview** 5.1. Quelles seraient les conditions nécessaires pour que vous envisagiez une conversion à l'élevage biologique ? 5.2. Avez-vous d'autres remarques concernant l'élevage biologique et ses implications ?

Appendix 7: Snapshot of a BCE research example



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Critères de recherche

Code(s) Nacebel: 014
Commune et les communes avoisinantes: Bastogne
Personne physique + Personne morale

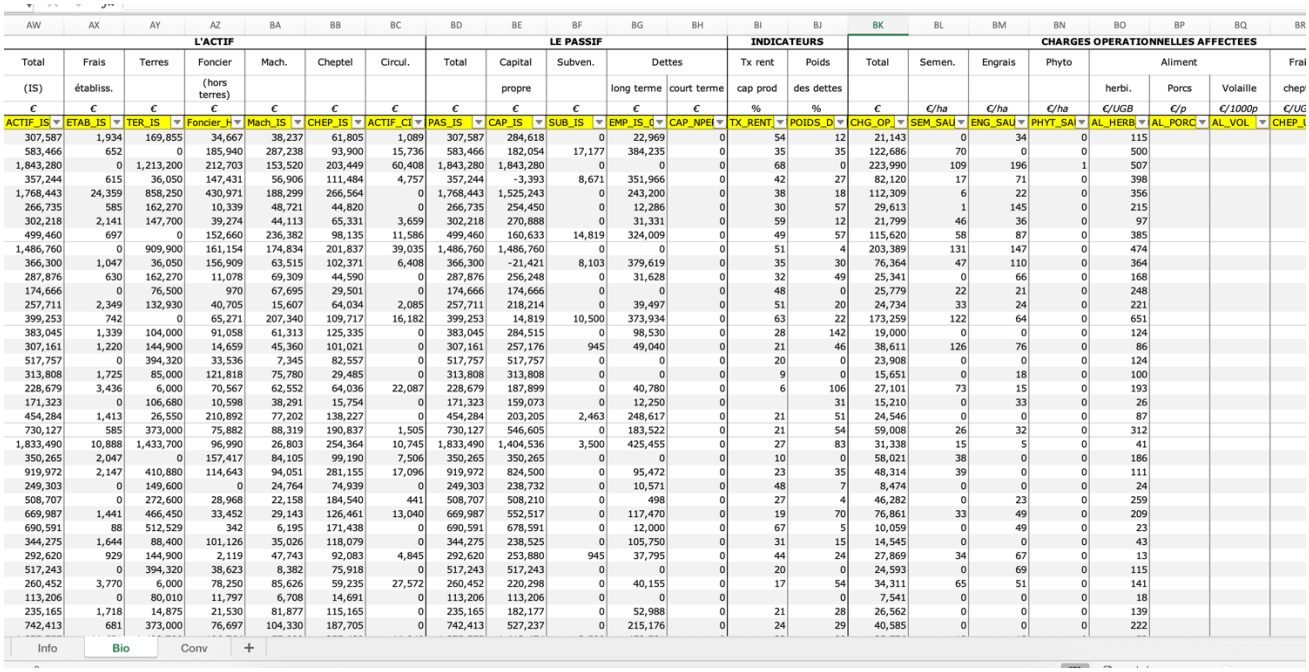
Plus de 200 entités et/ou unités d'établissement correspondent à vos critères de recherche. Veuillez affiner votre recherche.

200 entités ou unités d'établissement trouvées, affichage de 1 à 20.

[Premier/Précédent] **1**, 2, 3, 4, 5, 6, 7, 8, 9, 10 [Suivant/Dernier]

	ENT/UE Statut	Numéro d'entreprise	Numéro de l'unité d'établissement	Dénomination	Adresse	Activités	Code Nacebel
1	UE Actif	0775.769.772	2.322.822.277	ASD Horses	Rue Chéravoie 5 6660 Houffalize	Élevage de vaches laitières	01.410
2	UE Actif	0775.769.772	2.322.822.277	ASD Horses	Rue Chéravoie 5 6660 Houffalize	Élevage de chevaux et d'autres équidés	01.430
3	UE Actif	0775.769.772	2.322.822.277	ASD Horses	Rue Chéravoie 5 6660 Houffalize	Élevage d'ovins et de caprins	01.450
4	ENT PM Actif	0861.386.526	-	ASS FAIT PIERRET - VOZ	Rue de Wibrin, Nadrin 36 6660 Houffalize	Élevage de vaches laitières	01.410
5	UE Actif	0666.617.751	2.302.599.658	ASS LEROY JOSE & LAURENT	Rue des Deux Laiteries,Warnach 140 6637 Fauvillers	Élevage d'autres volailles, sauf poules	01.479
6	UE Actif	0873.152.329	2.322.533.059	ass Neu Joseph - Neu Céline et Neu	Boeur 50 6662 Houffalize	Elevage de poules	01.471
7	UE Actif	0873.152.329	2.322.533.059	ass Neu Joseph - Neu Céline et Neu	Boeur 50 6662 Houffalize	Production d'œufs de volailles	01.472
8	ENT PP Actif	0718.105.549	-	Asselborn, Michel		Élevage d'autres animaux	01.480

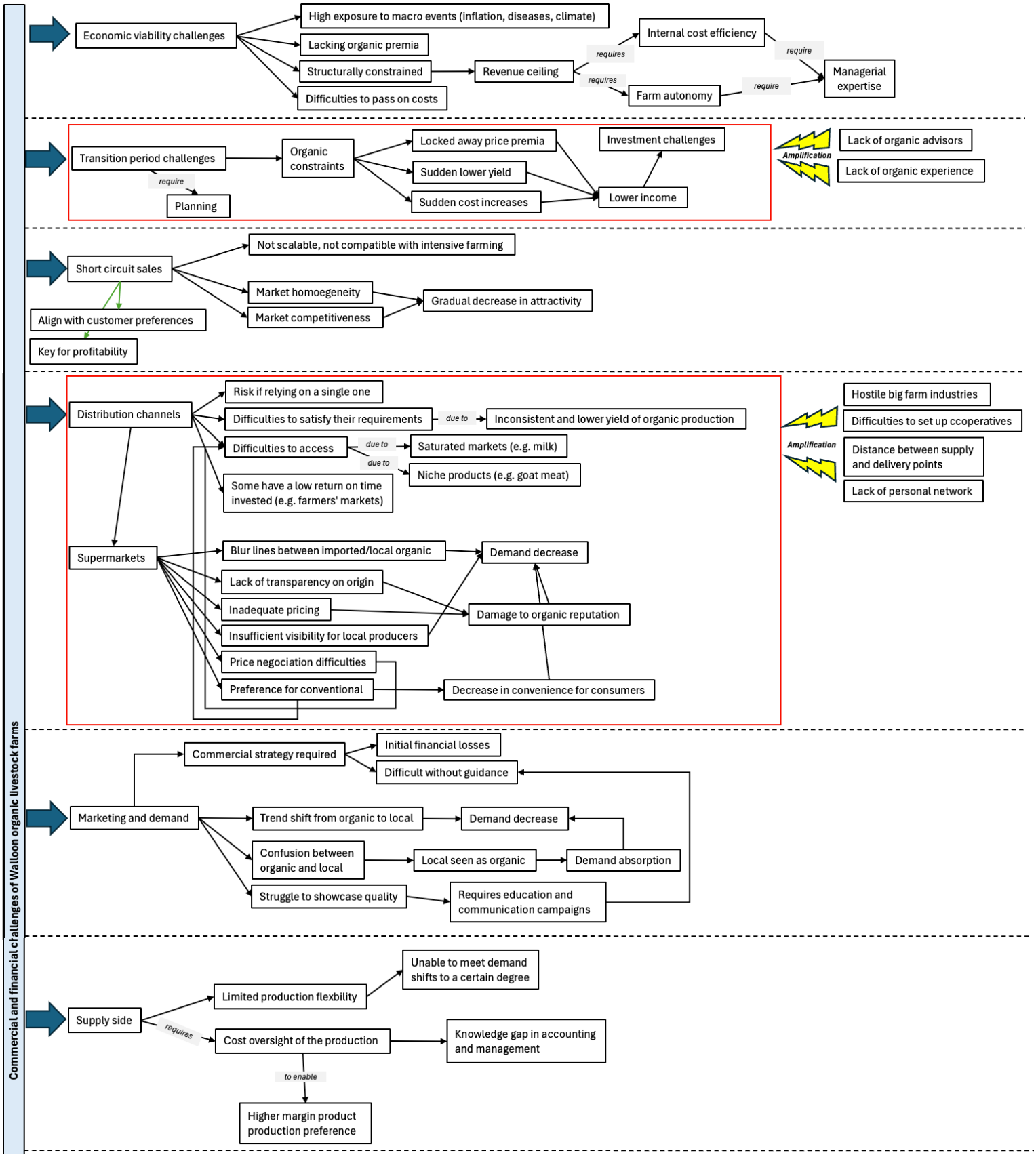
Appendix 8: Snapshot of the DAEA database

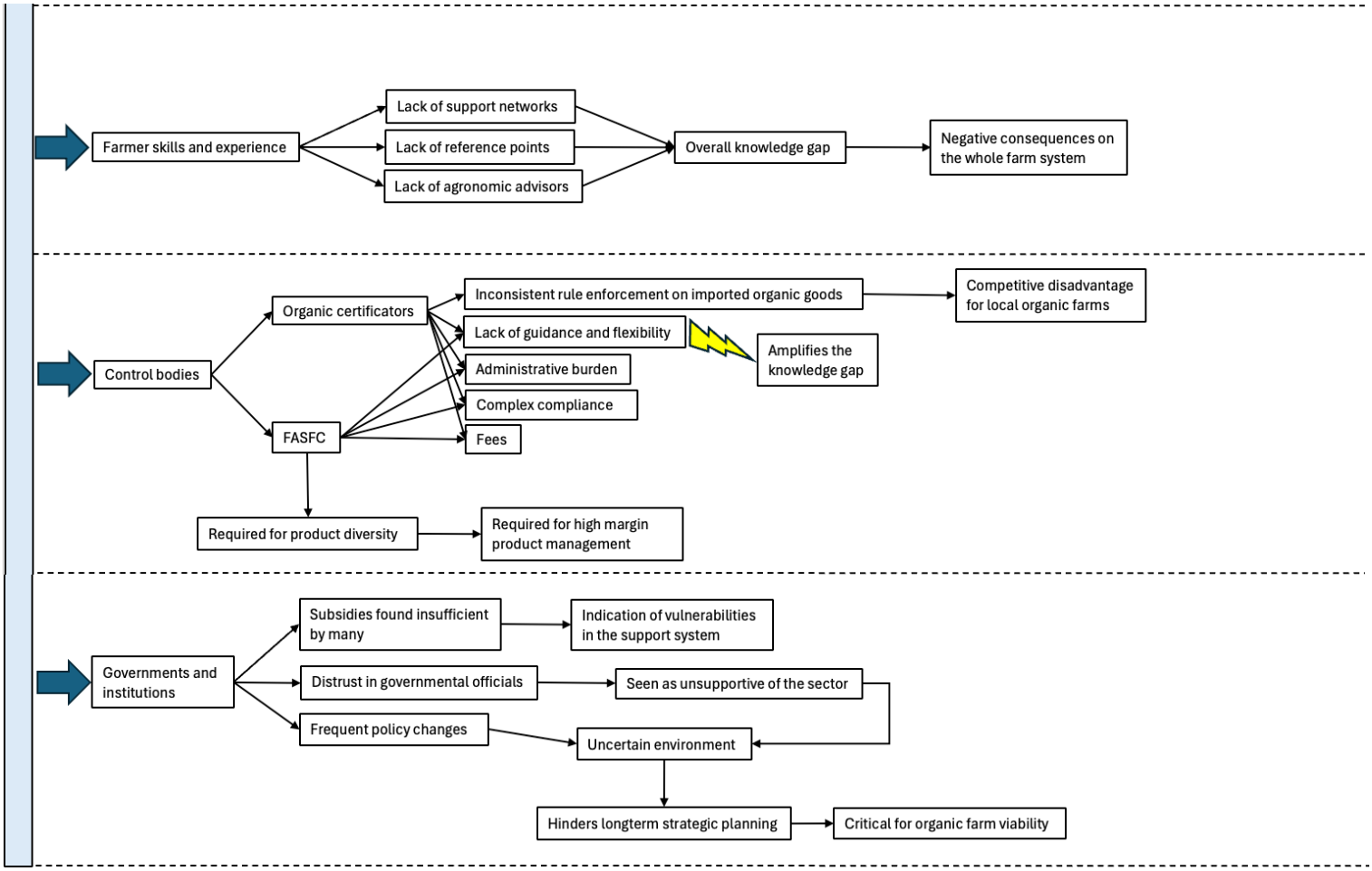


AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR
			L'ACTIF						LE PASSIF			INDICATEURS		CHARGES OPERATIONNELLES AFFECTEES							
Total	Frais	Terres	Foncier	Mach.	Cheptel	Circul.	Total	Capital	Subven.	Dettes		Tx rent	Poids	Total	Semen.	Engrais	Phyto	Aliment			Frai
(IS)	établiss.		(hors terres)					propre		long terme	court terme	cap prod	des dettes					herbi.	Porcs	Volaille	chep
€	€	€	€	€	€	€	€	€	€	€	€	%	%	€	€/ha	€/ha	€/ha	€/UGB	€/p	€/1000p	€/UG
ACTIF_IS	ETAB_IS	TER_IS	Foncier_H	Mach_IS	CHEP_IS	ACTIF_CI	PAS_IS	CAP_IS	SUB_IS	EMP_IS_(	CAP_NPE	TX_RENT	POIDS_D	CHG_OP	SEM_SAU	ENG_SAU	PHYT_SAI	AL_HERB	AL_PORC	AL_VOL	CHEP_(
307,587	1,934	169,855	34,667	38,237	61,805	1,089	307,587	284,618	0	22,969	0	54	12	21,143	0	34	0	115			
583,466	652	0	185,940	287,238	93,900	15,736	583,466	182,054	17,177	384,235	0	35	35	122,686	70	0	0	500			
1,843,280	0	1,213,200	212,703	153,520	203,449	60,408	1,843,280	1,843,280	0	0	0	68	0	223,990	109	196	1	507			
357,244	615	36,050	147,431	56,906	111,484	4,757	357,244	-3,393	8,671	351,966	0	42	27	82,120	17	71	0	398			
1,768,443	24,359	858,250	430,971	188,299	266,564	0	1,768,443	1,525,243	0	243,200	0	38	18	112,309	6	22	0	356			
266,735	585	162,270	10,339	48,721	44,820	0	266,735	254,450	0	12,286	0	30	57	29,613	1	145	0	215			
302,218	2,141	147,700	39,274	44,113	65,331	3,659	302,218	270,888	0	31,331	0	59	12	21,799	46	36	0	97			
499,460	697	0	152,660	236,382	98,135	11,586	499,460	160,633	14,819	324,009	0	49	57	115,620	58	87	0	385			
1,486,760	0	909,900	161,154	174,834	201,837	39,035	1,486,760	1,486,760	0	0	0	51	4	203,389	131	147	0	474			
366,300	1,047	36,050	156,909	63,515	102,371	6,408	366,300	-21,421	8,103	379,619	0	35	30	76,364	47	110	0	364			
287,876	630	162,270	11,078	69,309	44,590	0	287,876	256,248	0	31,628	0	32	49	25,341	0	66	0	168			
174,666	0	76,500	970	67,695	29,501	0	174,666	174,666	0	0	0	48	0	25,779	22	21	0	248			
257,711	2,349	132,930	40,705	15,607	64,034	2,085	257,711	218,214	0	39,497	0	51	20	24,734	33	24	0	221			
399,253	742	0	65,271	207,340	109,717	16,182	399,253	14,819	10,500	373,934	0	63	22	173,259	122	64	0	651			
383,045	1,339	104,000	91,058	61,313	125,335	0	383,045	284,515	0	98,530	0	28	142	19,000	0	0	0	124			
307,161	1,220	144,900	14,659	45,360	101,021	0	307,161	257,176	945	49,040	0	21	46	38,611	126	76	0	86			
517,757	0	394,320	33,536	7,345	82,557	0	517,757	517,757	0	0	0	20	0	23,908	0	0	0	124			
313,808	1,725	85,000	121,818	75,780	29,485	0	313,808	313,808	0	0	0	9	0	15,651	0	18	0	100			
228,679	3,436	6,000	70,567	62,552	64,036	22,087	228,679	187,899	0	40,780	0	6	106	27,101	73	15	0	193			
171,323	0	106,680	10,598	38,291	15,754	0	171,323	159,073	0	12,250	0		31	15,210	0	33	0	26			
454,284	1,413	26,550	210,892	77,202	138,227	0	454,284	203,205	2,463	248,617	0	21	51	24,546	0	0	0	87			
730,127	585	373,000	75,882	88,319	190,837	1,505	730,127	546,605	0	183,522	0	21	54	59,008	26	32	0	312			
1,833,490	10,888	1,433,700	96,990	26,803	254,364	10,745	1,833,490	1,404,536	3,500	425,455	0	27	83	31,338	15	5	0	41			
350,265	2,047	0	157,417	84,105	99,190	7,506	350,265	350,265	0	0	0	10	0	58,021	38	0	0	186			
919,972	2,147	410,880	114,643	94,051	281,155	17,096	919,972	824,500	0	95,472	0	23	35	48,314	39	0	0	111			
249,303	0	149,600	0	24,764	74,939	0	249,303	238,732	0	10,571	0	48	7	8,474	0	0	0	24			
508,707	0	272,600	28,968	22,158	184,540	441	508,707	508,210	0	498	0	27	4	46,282	0	23	0	259			
669,987	1,441	466,450	33,452	29,143	126,461	13,040	669,987	552,517	0	117,470	0	19	70	76,861	33	49	0	209			
690,591	88	512,529	342	6,195	171,438	0	690,591	678,591	0	12,000	0	67	5	10,059	0	49	0	23			
344,275	1,644	88,400	101,126	35,026	118,079	0	344,275	238,525	0	105,750	0	31	15	14,545	0	0	0	43			
292,620	929	144,900	2,119	47,743	92,083	4,845	292,620	253,880	945	37,795	0	44	24	27,869	34	67	0	13			
517,243	0	394,320	38,623	8,382	75,918	0	517,243	517,243	0	0	0	20	0	24,593	0	69	0	115			
260,452	3,770	6,000	78,250	85,626	59,235	27,572	260,452	220,298	0	40,155	0	17	54	34,311	65	51	0	141			
113,206	0	80,010	11,797	6,708	14,691	0	113,206	113,206	0	0	0		0	7,541	0	0	0	18			
235,165	1,718	14,875	21,530	81,877	115,165	0	235,165	182,177	0	52,988	0	21	28	26,562	0	0	0	139			
742,413	681	373,000	76,697	104,330	187,705	0	742,413	527,237	0	215,176	0	24	29	40,585	0	0	0	222			

Info | Bio | Conv | +

Appendix 9: Findings overview (self-production using the discussion chapter)




Farmer skills and experience
Lack of support networks
Lack of reference points
Lack of agronomic advisors
Overall knowledge gap
Negative consequences on the whole farm system
Control bodies
Organic certificators
FASFC
Inconsistent rule enforcement on imported organic goods
Lack of guidance and flexibility
Administrative burden
Complex compliance
Fees
Amplifies the knowledge gap
Competitive disadvantage for local organic farms
Required for product diversity
Required for high margin product management
Governments and institutions
Subsidies found insufficient by many
Distrust in governmental officials
Frequent policy changes
Indication of vulnerabilities in the support system
Seen as unsupportive of the sector
Uncertain environment
Hinders longterm strategic planning
Critical for organic farm viability

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EXECUTIVE SUMMARY

Due to uncertain geopolitical times, Europe needs to strike a balance between food security, environmental protection but also farmer frustration. Recent upheavals of farmers indicate that the central European, and notably the Walloon agricultural sector is under pressure. A gap in the literature presents the opportunity to explore, through a fresh lens, the commercial and financial challenges encountered by Walloon livestock farmers in order to provide new leverage points for stakeholders.

A qualitative approach, complemented by a qualitative part, was used. First, semi-structured interviews of agricultural macro-actors (n=3) and a financial analysis on a database (n=585) provided by the Walloon *Direction de l'Analyse Economique* have been utilized to complement the literature and to narrow down the theory to the Walloon context. Then, semi-structured interviews of (mostly) organic farmers (n=12) were conducted in order to get insights on the matter.

The findings indicate the following barriers:

Structural limitations (revenue ceilings, farm autonomy and cost management requirement), limited production flexibility, difficulties to pass on costs and lacking organic premia, the transition period (lower yields, no price premia and higher costs), distribution channels (conventional preferences, distances, access and requirements of consistent supply), various negative demand impacts (demand shift to local, local/organic confusion, expensive image and reputation damage from supermarkets), market homogeneity and competitiveness, a significant knowledge gap of organic farm management (including commercial and financial sides), lack of advisors, administrative burden and lack of guidance of control bodies, inconsistent rule enforcement (leading to a competitive disadvantage versus foreign organic products), uncertain and hostile environment (big farm industries, frequent policy changes, governmental strife).

To strengthen the organic Walloon sector's resilience, these challenges need to be addressed and could unlock substantial growth but will require coordination across various stakeholders in order to sustain a long-term pathway towards equitable, environmentally responsible regional food systems.

MOTS-CLÉS/KEYWORDS: Organic farming – commercial and financial barriers – livestock – Wallonia – Walloon farms

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